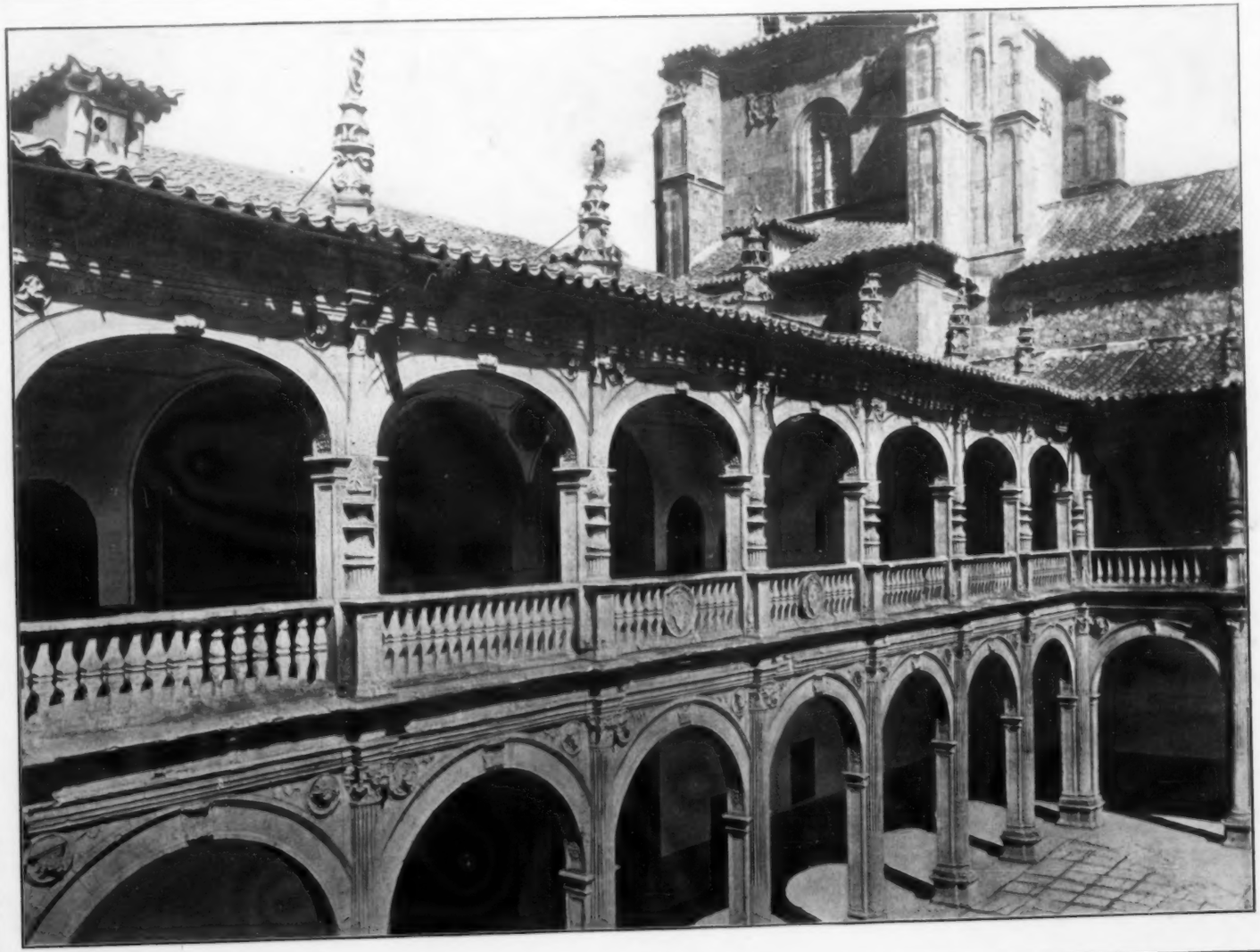
THE BRICKBUILDER.

VOL. 13 JULY 1904 NO. 7

CONTENTS — PLATES

CONTENTS — LETTER PRESS



COURT OF THE IRISH COLLEGE, SALAMANCA, SPAIN.

THE BRICKBVILDER

VOL. 13 No. 7 — DEVOTED · TO · THE · INTERESTS · OF ARCHITECTVRE · IN · MATERIALS · OF · CLAY — JULY 1904

THE BRICKBUILDER.

PUBLISHED MONTHLY BY

ROGERS & MANSON,

85 Water Street, Boston, Mass. . . P. O. Box 3282.

Entered at the Boston, Mass., Post Office as Second Class Mail Matter, March 12, 1892.

Subscription price, mailed flat to subscribers in the United States and Canada . . . . . $5.00 per year
Single numbers . . . . . 50 cents
To countries in the Postal Union . . . . . $6.00 per year

SUBSCRIPTIONS PAYABLE IN ADVANCE.

For sale by all newsdealers in the United States and Canada. Trade supplied by the American News Company and its branches.

COLORED BRICK.

THERE has been during the past year or more a very marked tendency to the extensive use of plain red brick in some of our large cities, and we have frequently been asked whether in our opinion bricks of other colors have had their day, or in other words whether the better class of architects who are now using red brick in many of their buildings will abandon entirely other colors. Our opinion, based upon knowledge gathered from visits to the offices throughout the country, is that the particular style of brick is influenced a good deal by the prevailing fashions, but that in no case do we find an architect ready to say that he would be satisfied under all conditions with any one style or color. While very many red bricks are being used, the demand for the best of other colored bricks has increased considerably, and we have yet to hear of a single firm which has restricted its work to the use of red brick. On the other hand, many who have used red brick to a large extent for a year or more are again using other colors in some of their more important work. A few years ago a certain style of rough brick was manufactured for use in one of the buildings of Harvard University. The design called for a wall with a great deal of texture, and this was so admirably supplied by the rough dark burnt clay that for some styles of buildings the so-called Harvard brick has been very generally adopted. Like all good things its use developed in time into a fad and was carried to excess, but we believe it is fair to say, however, that in very many cases the plain red brick has been used as a substitute for stone rather than as a substitute for brick of other colors, and that the demand for the varied colors has steadily increased year by year.

With the present tendency to introduce color into our architecture, and we believe this to be no passing fad, we feel certain that our best architects will continue to use, as they have in the past, bricks of those colors which have a dignity and fitness for special purposes. It would be idle to specify these colors, for the reason that it is not our purpose in answering these questions to provide a palette from which the architect may choose. We will, however, venture the opinion that a well-made clay brick of any of the standard colors or shades now used will in the future find a greater market than has existed in the past, and that no color or style of brick will be adopted to the exclusion of all others.

MUNICIPAL ART.

THE action of the New York Art Commission in absolutely vetoing the proposed design for one of the Brooklyn bridges is a very encouraging sign of the extent to which municipalities are accepting the idea of artistic control for public functions. It is no longer admitted that the individual can entirely please himself when he offends the art convictions of his neighbors, and municipal art societies have multiplied very considerably even within the last five years. One form of such society has appeared in the city of Cambridge, Mass., where a league, including representative citizens, has been formed to influence public taste. This society has not attempted to work for the appointment of an art commission which shall have legal rights throughout the city, but works in the more easily accomplished channels of dealing directly with the individuals, offering advice gratis on matters of external art, and seeking to influence the efforts of the municipality as far as relates to parks, signs, lamp posts, street improvements, etc. This is purely a civic improvement society, and is but a type of many which have sprung into existence elsewhere. They are needed in every growing city, and so long as the founders do not make the mistake of imagining that only painters, sculptors and architects can truly be artists, which we really feel is the weak point in the organization of the New York Municipal Art Society, a great deal of good will be accomplished by these local attempts.

Hospital Planning. VII.

BY BERTRAND E. TAYLOR.

HEATING AND VENTILATION, PLUMBING AND LIGHTING.

HOSPITAL engineering problems, construction, heating and ventilation, plumbing and lighting, are specialties requiring long study and much practical experience. An architect can scarcely afford to take the time to absolutely master any one of them in detail, but one must be thoroughly familiar with the requirements and possibilities in order to be able to direct the general scheme. Not only this, but every detail must be carefully examined and checked, or the result will be far from satisfactory, as the requirements of the best hospital practice are very different from those of any other class of work.

Construction.

All will agree that whenever possible every building occupied by a number of human beings should be fireproof. If this is true generally, how much more necessary it is to protect in every possible manner the lives of those who are helpless. Every month chronicles the burning of several hospitals, accompanied usually by loss of life. There are at present not many more than half a dozen small hospitals in the country that are fireproof, one of the first being the Hitchcock Memorial, which was built by the writer some ten or twelve years ago at Hanover, N. H., although there are several being constructed at present. There is no good reason why a hospital costing from $50,000 to $100,000 should not be fireproofed. The day is not far distant when wood construction will be intolerable and will be barred by statute in this class of buildings. Fireproof construction is not only desirable and necessary as a protection to life and property, but its absolute rigidity and staying qualities make it a necessity in hospitals where the cracks and joints due to the invariable shrinkage and settling of wood joists are a constant menace.

Again, it is almost impossible to make a wood construction vermin-proof or as sound-proof as the usual fireproof constructions. Where it is absolutely impossible to construct a fireproof hospital, the administration building can be of ordinary second-class construction, and the pavilions for wards and surgical department can be fireproofed at a comparatively small additional expense, as they are generally but one story in height.

If the exterior walls are of brick, vaulted for an air space and the interior partitions of brick or tile, the floors of steel and tile, the ceilings of metal lath hung to steel channels, the plastering on metal lath and directly on the brick and tile, there is generally no possibility of cracks.

In my practice I have found that occasionally the conditions are such that a practically fireproof construction seems to cost little more than second-class construction, and a report on the cost of various school buildings recently erected for the city of Boston shows that in several instances fireproof schoolhouses have been erected at a less cost per cubic foot than others of a second-class construction. This certainly is encouraging and indicates a great progress in the right direction.

Floors.

There is probably no one detail of hospital construction that has created so much discussion, that has been the subject of so many expensive and generally disastrous experiments as that of the material for floors. The common and time-honored floor material in America is wood. Wood is an organic material and as such is a harbor and breeding place for all sorts of micro-organisms. When the bacteriologist informs us that a crack in a wood floor sometimes, and possibly generally, swarms with an incredible number of yeast and fermentation cells, bacteria, micrococci, etc., it shows us where some of the cause of the "institution smell" is located.

As it is wellnigh impossible to prevent at least small cracks, and the protection of the surface of the floor by varnish and antiseptic scrubbing is a question of eternal vigilance, it makes a problem the perfect solution of which is not yet in sight. The walls are covered with an inorganic material giving no lodging place and furnishing no food for germs, moreover there is practically no wear or possibility of cracks; but the floors are subjected to continual wear and continual scrubbing that are ruinous to the surface of any material except terrazzo, vitrified tiles or possibly a new composite floor.

The common flooring material is rift sawed Georgia pine, and if the surface is fully protected by continual varnishing the floors are kept in fairly good condition. If varnishing is neglected the scrubbing will soon disintegrate the wood and the floor is ruined. Rock maple, if "bone dry," makes an admirable floor, and it will stand more hard wear and neglect than yellow pine, as the wood is closer in grain. It will hold its color better than pine, but is more difficult to get absolutely dry.

Baths, toilets, diet kitchens and special rooms should have floors and bases of a material that will stand hard wear and scrubbing, require no varnishing and be waterproof. Terrazzo, marble, either Italian or Knoxville, alberene (a very hard soapstone), slate, etc., are used.

Terrazzo is the cheapest and is most commonly used. Marble is better in every way, it looks cleaner and is more impervious to moisture and grease and is very easily cleaned. Alberene shows dirt very quickly, but is almost absolutely impervious to any but surface action of acids, grease, etc. It is quickly cleaned, wears well and is capable of being fitted absolutely tight with an ideal joint, making a more perfect union than is possible with any other material. Dissecting tables, made of alberene, that have been in use for five years in one of the New York clinics look as clean and perfect to-day as when the stone left the quarry.

A slab of marble under and back of toilet fixtures looks well and is a cheap sanitary expedient when it is not possible to have the entire floor of enduring material.

In all rooms where special floors are used the base should be of the same material as the floor, as it is just as necessary to have that hard and aseptic as the floor. This base does not need to be high or expensive to be perfectly sanitary, nor does it need to have a large cove. A base four inches in height with a cove of one inch

NOTE. — In Part VI of this series the two plates showing the furniture in position in an operating room, a sterilizing room and an anæsthetizing room were incorrectly designated as being rooms of the Mount Sinai Hospital. They are instead plans of rooms in a small country hospital which the author is just fitting up.

radius is better than an expensive base with a cove of two or three inches, as there is less fouling surface. This base should be flush with the plaster line and continuous at the jamb, with no joint or plinth. There should be thresholds of marble of full thickness set flush with the top of the floor.

Floors in basements should be of Portland cement, coved at walls. As the basements of pavilions or ward buildings cannot properly be used for any purpose except heating and plumbing pipes, stacks and plenum chambers, it is obviously a waste of money to provide deep basements. Again, it is claimed that the air is contaminated and rendered to a degree damp and unhealthy if the excavation is carried much below the surface. The first floor of a hospital should therefore be from four to six feet above the finish grade, and this will also insure large windows that will aerate and purify the basement air. The need here is, as in the sick rooms, "more light."

ALLEGHENY GENERAL HOSPITAL, ALLEGHENY, PA. Beezer Brothers, Architects.

Heating and Ventilation.

The successful heating and ventilation of a hospital is a vital problem, and the only absolute rules that can be laid down are those treating, not of manner or detail, but of practical results.

The requirement is, for all northern latitudes, from three to five thousand feet of air per patient each hour, warmed indirectly to at least seventy degrees Fahrenheit, whatever the outside temperature. This means an expensive plant and an enormous coal consumption, also every precaution in the way of double run of sash or double glazing, vaulted walls, etc., to assist as much as possible in preventing the loss of heat through unnecessary radiation.

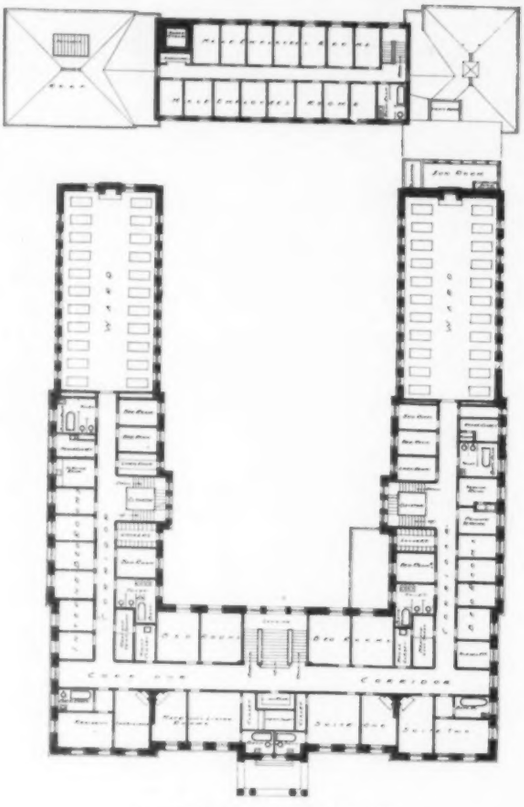
In warmer climates construction can be simpler and cheaper, and the radiation can be less with more "direct" work, relying largely on natural circulation for ventilation.

Some authorities maintain with considerable force that the sick wards should not be maintained at an unvarying temperature, that nature in its continual change of many degrees from noon to midnight shows that there is a necessity in this direction. If this varying condition is necessary in maintaining health in well people, why not in restoring health?

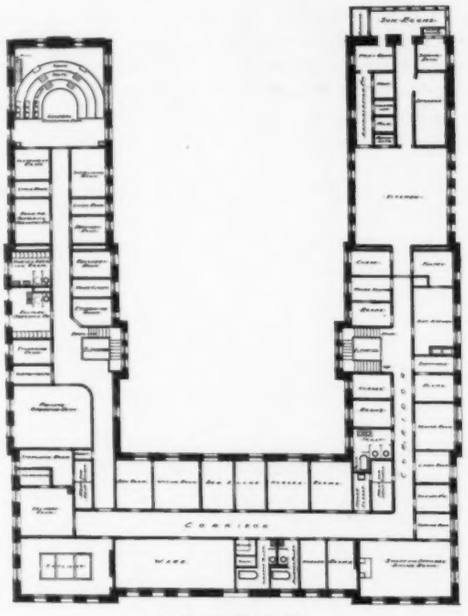
The perfect heating plant will be in a special building by itself or one having the laundry in a second story. It should be installed under one of the hospital buildings only as a temporary expedient when the finances absolutely preclude a special building.

High-pressure steam should be installed in a complete, perfected plant, to be used for power, laundry machinery, electric light, ventilation and sterilizing as well as for heating.

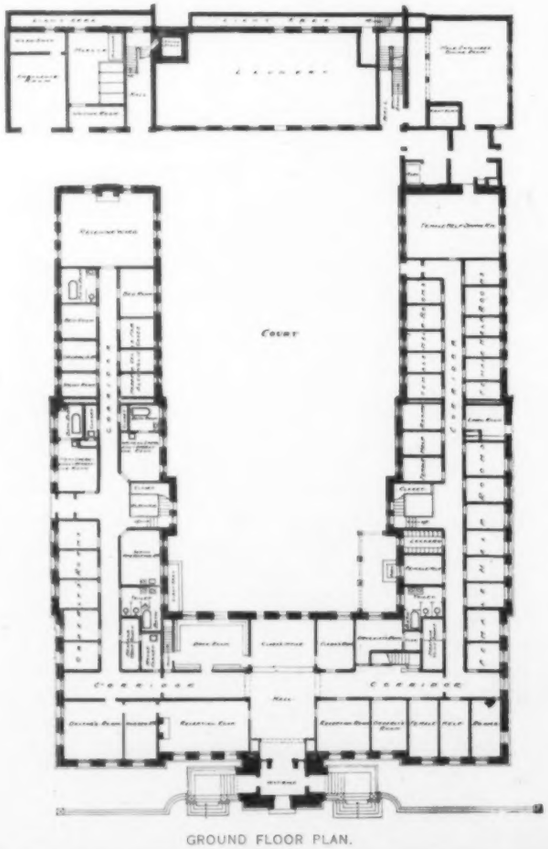
If the institution is too small to employ an experienced engineer, a low-pressure steam boiler can be installed for heating and a small high-pressure boiler can be used for the other purposes enumerated.



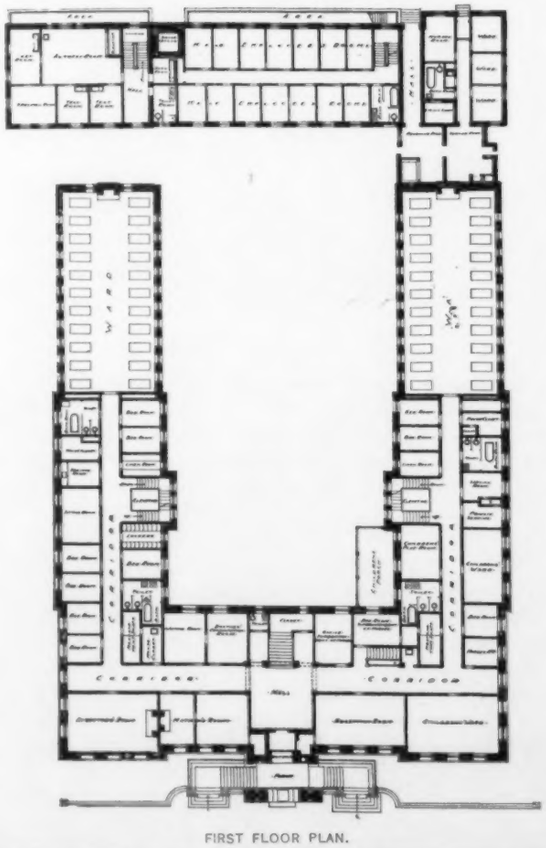
SECOND AND TYPICAL FLOOR PLAN.



SIXTH FLOOR PLAN.



GROUND FLOOR PLAN.



FIRST FLOOR PLAN.

FLOOR PLANS, ALLEGHENY GENERAL HOSPITAL.

In small hospitals it will generally be found best for economical reasons, both as to installation and maintenance, to install a low-pressure system. This will give no power for laundry machinery, which in a very small plant must be omitted, and it will give no high-pressure steam for disinfecting, sterilizing or for inducing draught in the vent flues, all of which are quite necessary, but are impossible without considerable expense. The sterilizing can be done quite as successfully by gas, and in the summer the ventilation can be by means of the windows and doors and special flues in toilets, heated by Bunsen burners. Whenever possible it is wise to install a small high-pressure boiler in addition to the low-pressure heating boiler for the various purposes named above.

Some of the most expensive and elaborate schemes of ventilation are often found to be perfect in theory but very defective in actual use. It takes coal to run a perfect system of heating and ventilation, and the engineer is apt to try to show his great worth by saving coal and by cutting off the electric fans as much as possible. In an institution inspected some time since, where the superintendent was very proud of his ventilating scheme by which the foul air was drawn up into the loft by electric fans and discharged through roof ventilators, it was suggested that sometimes these fans were found entirely cut off, with no ventilation at all. He was sure that his never were, and went up to the loft to investigate and found, what was apparent from the stagnant air in the wards, that they were not running.

While inspecting last year one of the finest and newest hospitals in a remote section of the country, I found very small hot-air inlets and vents and foul air everywhere, and apparently no ventilation at all. Expressing to the engineer a desire to make a study of his heating and ventilating plant, he informed me that they had the most complete and expensive scheme in the entire West, laid out by the best engineers, and that the results were perfect. Replying to my statement that the air seemed bad and the ventilation poor, he said: "These fans will do it and do it quick. Why, you can imagine how thick the air gets in the wards by morning. You can almost cut it with a knife. I start the fans, and in half an hour the air is as pure and sweet as outdoors." To run the fans half an hour, morning and night, may be ventilation, but it ought not to be so considered. What is needed is not fresh, pure air in two half-hour periods per day, but all the time.

The details of a perfect scheme should be the subject of an exhaustive special article entirely beyond the scope of the present papers, but there are a few points that might be mentioned. In a small hospital situated in a broad expanse of green lawns, the necessity of taking the air for the heating coils from an elevation is not as necessary as in the city hospital, where the air at the ground level is full of dust and dirt and all manner of impurities.

Under these ideal conditions the introduction of the air through wire mesh covered openings directly to the stacks serves the purpose very well, but a dust-settling chamber that has the bottom hinged for cleaning is a safeguard, and the stacks should have slides so placed that every portion of the rough dust-collecting castings can be thoroughly brushed and cleaned. When the basement under the pavilion is used as a plenum chamber, as is quite commonly the case, the entire room should be finished as smooth as possible with a plastered ceiling, smooth pointed walls covered with a coat of limewash and a coat of cheap waterproof enamel, with a smooth cement concrete floor sloping to a catch-basin and drain, so that it can be thoroughly cleansed and purified with a hose. Usually the heating and ventilating flues are entirely inaccessible, and are therefore never cleaned. The register faces are screwed in place and never removed. They are generally so constructed as to be specially fitted to catch and hold dust and filth and be almost impossible to thoroughly cleanse, and the flues are loaded with filth that can never be removed.

The best practice is to omit, as far as possible, the register face entirely, and thus to open both the heating flue and the vent flue to inspection and dusting. When the heating flue enters the room, as it should, at least eight feet from the floor, there is no danger of its being used by patients to throw rubbish into, and the vent flue opening at the floor is much more easily adjusted without a register.

The mixing valve under the control of the nurse can be arranged to the amount and quality of the air admitted.

Plumbing.

No problem connected with hospital construction is so vital as that of the plumbing. Possibly no problem is understood less by the average practitioner. A set of plans showing the water supply and drainage systems of a hospital, drawn with anything approaching the accuracy of other branches of engineering, is comparatively rare. In common practice the size and material for piping are specified and the schedule of goods made by the manufacturer or jobber which has favor in the office is noted, and the plumber does the rest.

It is obviously unnecessary to state here that the soil pipes should be extra heavy, the drains straight and never buried beneath a building, but strongly hung to ceilings with a good fall and clean-outs at every angle.

The most practical hospital engineers agree that all piping should be exposed, whether in basements or finished rooms, that no piping should be in slots or partitions, except to pass through a floor or partition. All supplies, hot and cold, should be heavy brass pipe. The custom has been to put in polished piping, but this means an endless amount of work in cleaning and polishing. Paint is affected by heat, but aluminum bronze looks well, is sanitary and is easily kept clean.

It may be safely stated that nothing is too good for a hospital. Every portion should be of the best, put together and put up in the strongest and most substantial manner. Complications should be avoided, and the most expensive is not necessarily the best.

The fixtures in common use abroad are generally extremely heavy and often very complicated, lacking the simplicity of those of American manufacture. On the other hand, American goods in current use are frequently too light in weight and wear out too quickly.

All cocks, wastes, traps, etc., should be of brass of the plainest possible design, so as to be easily cleaned. Portions continually handled should be of porcelain. Hard or red brass wears much longer than yellow brass,

cleans readily, but looks very badly when not clean. Possibly this is a good quality, as it necessitates continual cleaning.

Nickel-plated work should never be used in a hospital, as the necessary cleaning soon wears through the thin plate, showing the deception, and the nickel surfaces quickly corrode and become rough and black unless continually cleaned. If a plated effect is desired it can be obtained by using a solid white metal that will wear and look well and be easy to keep clean.

There has been little effort on the part of the manufacturers to perfect and put on the market ideal hospital fixtures. The specialist has been obliged to design his own fixtures or use the elaborate, heavy, showy goods which are found in stock.

The endeavor has been, apparently, to make as much show as possible to account for the tremendous cost; to make as many complications as possible to add to the service account; and to make the parts as weak as possible to insure continual repairs. However this may be, it is almost impossible to find a perfect plumbing fixture, that is, of the utmost simplicity; and it will be well worth the serious effort of the plumbing goods manufacturer to produce practical, simple and durable special hospital fixtures.

An innumerable number of fixtures are made here in America that vary little except in name.

So-called "solid porcelain" is the best material so far devised for lavatories, sinks, tubs and slop hoppers, but the name is a misnomer. The porcelain consists of a very thin film, clear on the surface and opaque inside, covering a very coarse yellow body. It is extremely smooth and beautiful, but the glaze is brittle and easily fractured by rough usage, and a fracture will absorb ink, grease or dirt, and absolute cleansing is then wellnigh impossible. In sinks and even in lavatories the glaze frequently wears off in a few years, showing the yellow body and giving a very disagreeable soiled appearance.

Some of the best English ware, although not so smooth or straight, having not a brilliant but rather a dull eggshell surface, is found by experiment to be much more durable, will stand much harder treatment and wear longer, and breaks in the surface are less easily made and are less absorptive. An almost ideal ware for hospital use is the "vitrified." It has fewer of the objectionable features found in the "solid porcelain," being a fine-grained, non-absorptive material throughout, with no tendency for the surface to wear off. The objections noted thus far are that the pieces have a tendency to warp in the firing, and there is a limit to the thickness. Some special pieces recently manufactured from designs by the author seem to demonstrate that this ware is ideal for all hospital purposes, as its strength is much greater than any other material.

The enameled iron ware is little used except in cheap work, is liable to the objections noted above, and the additional objection that the so-called enamel is not generally hard enough to stand hard usage and will crack and chip and rust if water gets at the base.

The plumbing in the administration building, not being subjected to the continual hospital cleansing treatment, can approximate to a good, simple and substantial residence type.

The safest fixture is the water-closet, because the trap is a part of the fixture, and there is therefore no fouling surface open to the room but not in sight.

The tank almost invariably used is up out of reach, and an investigation will generally develop the fact that it is full of dirt and dust and in a condition that would be disgusting if it were on the floor. For this reason, coupled with the fact that the one, two or three connecting pipes on the wall need to be clean, a "low-down" covered tank or a good type of flush valve is a great improvement in reducing and simplifying the fixtures in the room, as well as in making it possible to easily get at a complicated piece of mechanism.

The flush valves so far produced do not seem to be absolutely safe, as a grain of sand or brass filing will allow a continual waste of water that is difficult to detect.

A new sink trap has been arranged to screw directly to the bottom of the sink, so that the water in the trap is visible and all portions can be cleansed.

Lavatories, trays and slop hoppers should all be built on the principle of the water-closet, with every surface, down to and including the water seal, in sight. Then, and only then, can we be sure of clean sanitary fixtures.

Lighting.

Wherever possible the lighting should be done by electricity, and no gas piping should be introduced except for range in diet kitchens, for duplicate lighting for emergency in the operating rooms, for sterilizers, gas crematory, etc. Sometimes a Bunsen burner is introduced in a toilet vent for acceleration during the summer, if no high-pressure boiler is used.

Gas pipes are apt to leak at the joints, and fixtures will generally wear at the cocks and eat out at the joints, which will in time allow the poisonous gas to slowly pollute the air.

The outlets should be generally at the head of the bed, so as to keep the light from shining directly in the patient's eyes. If a chandelier is desired, an inverted cone shape of opaque glass, green outside and white inside, will throw the light up, lighting the room without troubling the patients. When this style is adopted a movable electric lamp, with a cord and plug and shade, can be used at the bed for examinations, etc. This can be used also to run an electric fan when desired.

Each bed should have a cord and pressile communicating with the annunciator at the nurse's table to call the nurse when needed.

The electric fixtures should be made as simple as possible to accomplish the purpose. They should be of heavy brass thoroughly enameled white, so as to be easily cleaned. The usual lacquered brass fixture soon becomes soiled, and continual cleaning quickly wears off the lacquer, leaving the brass in an unsightly condition, partly bright and partly dull. This may be clean, but it looks quite the reverse. With porcelain key sockets and shades to control the direction of the light, simple, practical and not inartistic results are possible.

A complete system of intercommunicating telephones should be installed in every hospital, however small, with a phone in every department. The item of labor is the largest portion of the cost of running a hospital, therefore every labor-saving device should be introduced.

(*Concluded.*)

The Work of an English Hospital Architect, H. Percy Adams. I.

BY R. RANDAL PHILLIPS.

IN no science has so great an advance been made during the past century as in medicine and surgery. Time-honored opinions and practices have been discarded and new systems evolved in place of them; old ideas have been swept from the category of modern medical men; and the most minute care has been given to details which were formerly not considered sufficiently important to merit much attention. Correspondingly, the planning and fitment of hospitals and kindred buildings have changed; in fact, the process goes on unceasingly as new facts are discovered, so that the hospital architect needs to keep in close touch with all that is being done towards the advancement of both medicine and surgery, so far as relates to details of planning and arrangement.

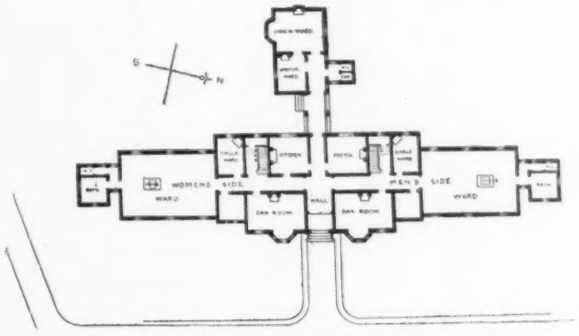
DORKING INFIRMARY.

In Great Britain very great advances in hospital planning have been evolved, and one calls to mind the names of many men to whom are due the excellent institutions in the principal cities of the kingdom. It is to such men, studying the latest developments and keeping themselves in every respect up to date, that we may look for the provision of hospitals designed in accord with modern science. Of all things, hospital work is not a text-book affair; it is the outcome of progressive experience, intelligent observation of what has been and is being done, and the application of personal ability to the solution of a problem that is never the same.

Prominent among architects in England who have gained a reputable position as able designers of hospitals is H. Percy Adams, F. R. I. B. A., who has especially distinguished himself in his later work for a refinement and freshness in design, as well as excellence of plan.

Among his earlier buildings is the Poor Law Infirmary at Ipswich (designed in conjunction with Mr. W. L. Newcombe). In connection with this hospital it is worth noting that the Local Government Board mentioned the buildings as the best existing models of their kind, and the architects were asked to supply the Empress of Russia with copies of the plans.

Bedford County Hospital is perhaps the earliest of Mr. Adams's important works. The design was accepted in limited competition among six architects chosen out of sixty-nine who submitted their names. This hospital was begun in 1897 and cost about $150,000. From the accompanying plan it will be seen to comprise a central administrative block connected by a long corridor with the four ward blocks in the rear, the out-patients' department being on one side at the front, and the operating theater between it and the administrative block. Such a disposition is of course especially adapted to an open site like that at Bedford. It will be noticed that the administrative building is three stories high, there being a large board room on the first floor* and bedrooms for the matron and house surgeon, the second floor being occupied with servants' bedrooms. The kitchen department is behind this central block and is only one story high; the right-hand corridor shown on the plan is used by servants and tradesmen only, while that on the left-hand side is for the staff, patients and visitors, its lobby being the casualty entrance. The male and female wards are sixty-nine feet long, twenty-seven feet wide and thirteen feet high, accommodating sixteen beds each, with the surgical cases on the ground floor and the medical above. The children's ward is the same length and height, but only twenty-four feet wide; here again picture tiles have been introduced. The walls have dadoes of glazed brick five feet high, as commonly employed in hospitals, finished with Parian cement above, except in the children's ward, which has the tiles already referred to. The floors are of terrazzo (I may here mention that in one or two of Mr. Adams's hospitals where such floors were laid they have been covered with linoleum or some other material which gives a better foothold, though the best surface seems to be hard wood blocks polished with wax). An isolation building is provided at some distance from the other buildings at Bedford, containing four isolation

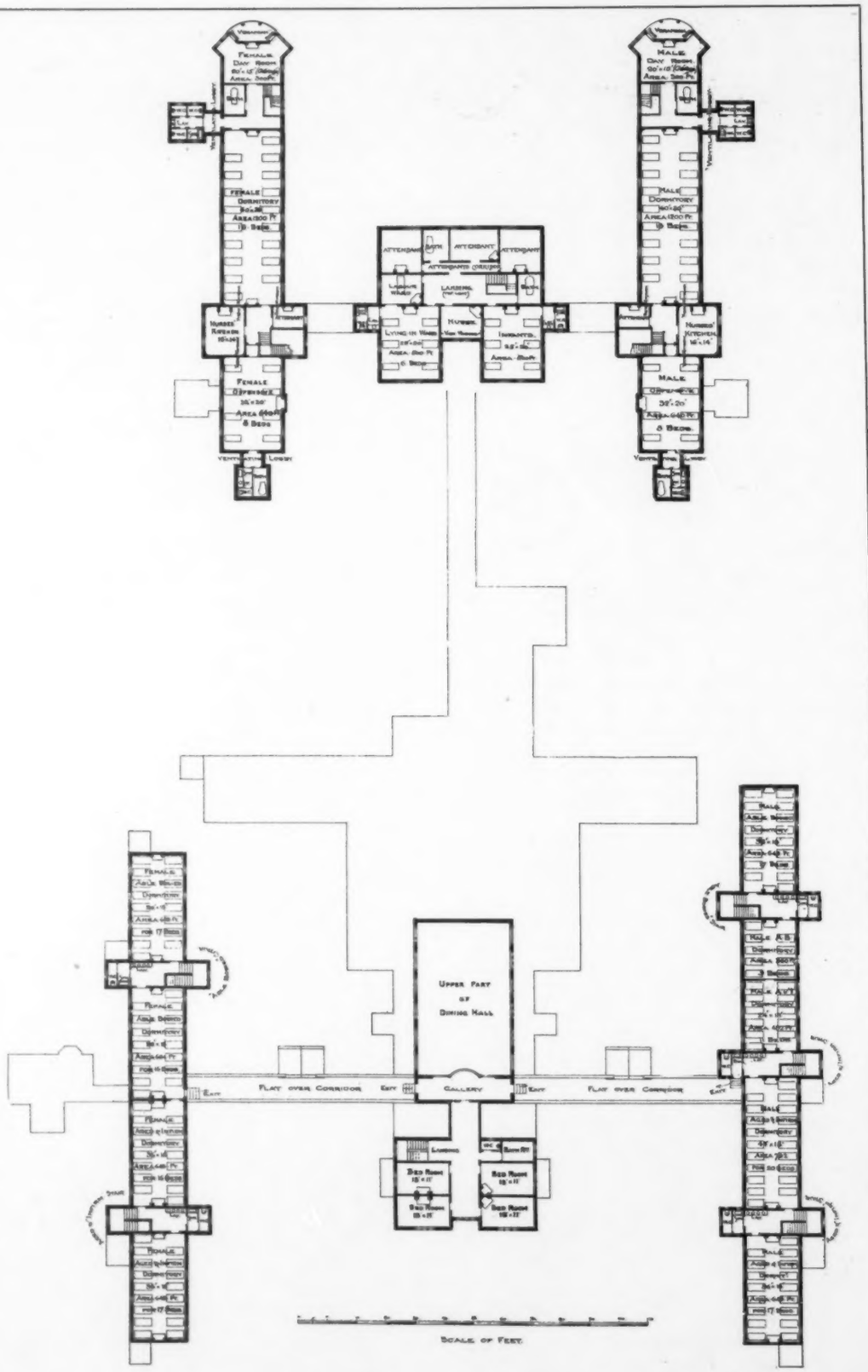


PLAN, DORKING INFIRMARY.

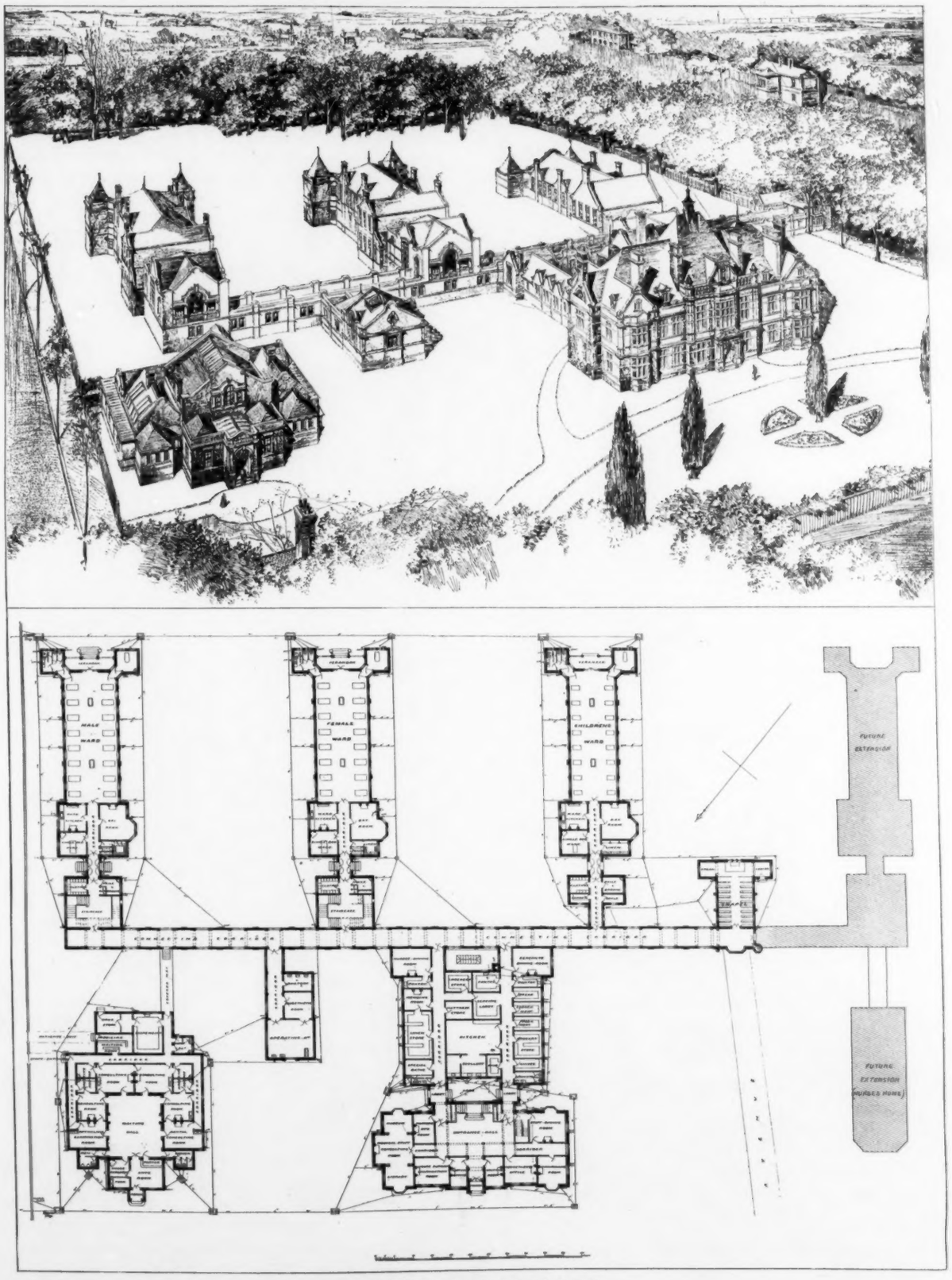
rooms fourteen feet six inches by fourteen feet, with a nurse's room, etc., to each two.

At Dorking, in Surrey, an interesting ward block with nurses' rooms, etc., has been erected from Mr. Adams's design, providing sixty beds in connection with the old workhouse. This also was the result of a competition in which sixty three designs were submitted. In these wards terrazzo floors were again provided. The walls have a salt-glazed brick dado, while the corridors are painted white, the woodwork being painted an apple-green color. Heating is by low-pressure hot water and central ward stoves. The cost of the block was $45,000. The accompanying plan shows the arrangement of the wards, the men being on one side and the women on the other. On the first floor there is an open balcony for each sex, having a beautiful outlook.

*This would be called the second floor in America. In England the floor on a level with the ground is called the ground floor, not the first floor.



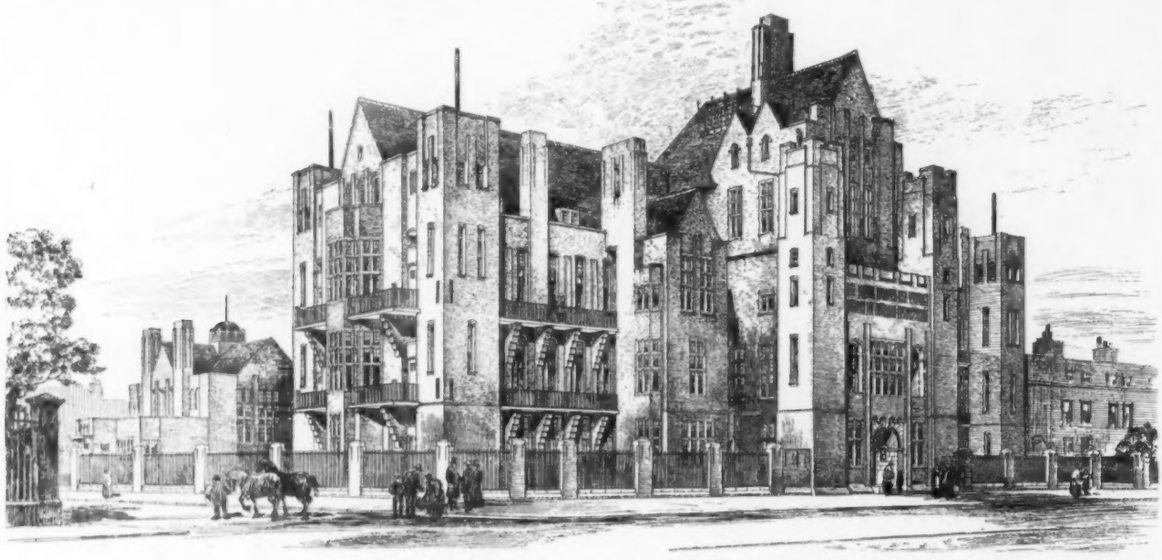
PLAN, IPSWICH POOR LAW INFIRMARY.



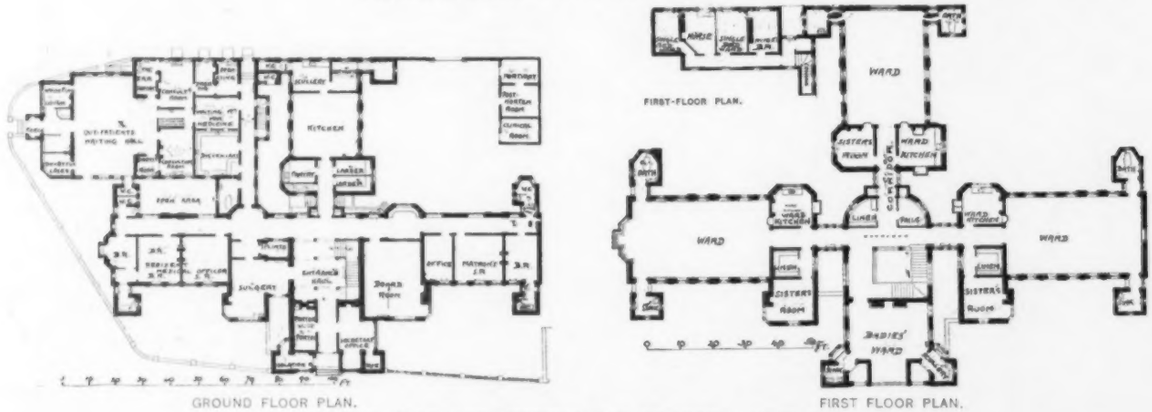
THE BEDFORD COUNTY HOSPITAL.

I may next deal with a very interesting and important work by Mr. Adams, the new Belgrave Hospital for Children at Kensington, in the southeastern district of London. The original contract for the building work was $245,000, but that included the west wing, a duplicate of the east wing, which has not yet been erected. When completed the total accommodation will be for seventy-eight cots, with all necessary offices for staff and equipment. Turning to the plans of the hospital, in the basement, in one corner on the back frontage, is an isolation room which can be used for some suddenly discovered case of infectious disease. Coming to the ground floor it will be seen that an isolation room is provided just inside the entrance. This is a provision against any infectious case that may be discovered when children are brought to the hospital, in which event they may be immediately taken away by the side door, — a very important point when it is remembered how easily infectious diseases spread among sickly children. The entrance passage has a porter's room on one side, connected by telephone with all parts of the hospital, and a secretary's office on the other. The passage is barrel-vaulted, the vault being covered with glass mosaic of a very beautiful blue tint, laid in lines parallel with the axis; the walls being lined with marble. This treatment is carried out in the entrance hall beyond. In the kitchen glazed tiles are placed under the grill, so that grease may be easily cleaned off, and the sinks in the scullery are of pitch pine with teak tops. To the left is the out-patients' department. Here again provision is made to check any cases of infectious disease, anterooms being arranged on each side where children may be examined. The out-patients' waiting hall is a large, well-lighted room, with the usual consulting rooms adjoining; it will be noticed, too, that a staircase leads down to the isolation room in the basement already mentioned, this also having a separate external exit. Patients pass from the hall into the medicine room (where they are served through two hatches from the dispensary) and so into a corridor that leads out at the back of the hospital. Thus the out-patients' department is kept quite distinct and separate.

A special feature of the hospital is the main staircase



BELGRAVE HOSPITAL FOR CHILDREN, LONDON.

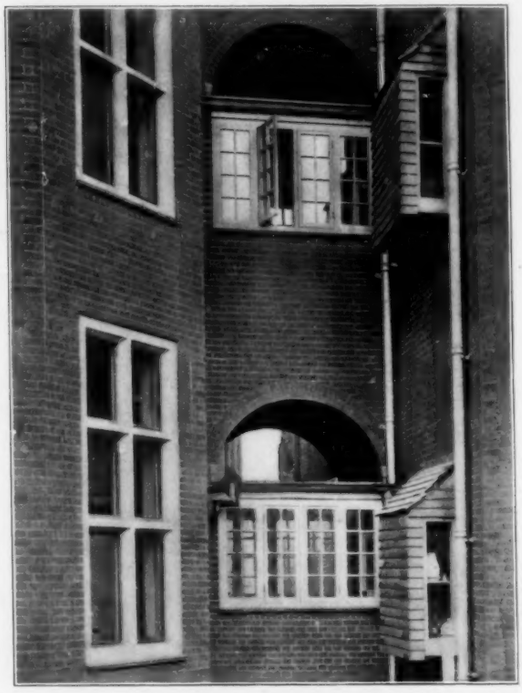


GROUND FLOOR PLAN. FIRST FLOOR PLAN.

PLANS, BELGRAVE HOSPITAL FOR CHILDREN, LONDON.

that rises from the entrance hall. This is entirely of teak, jointed in places with ebony keys, and has solid treads thirteen and a half by six and a half inches; these latter are quite unusual. The staircase is carried independently of the walls, with a stout newel running to the top of the building, and being of solid hard wood is considered to be very fire resisting.

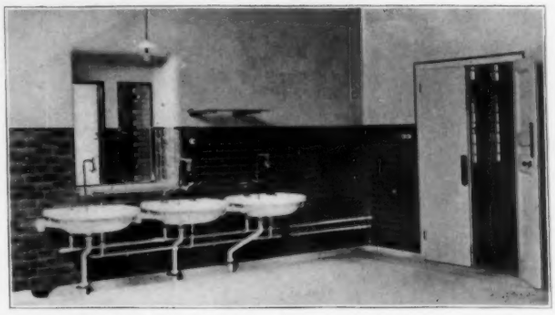
The wards are on the first and the second floors; they are laid with teak blocks and lighted with six windows on each side and a large bay at the end. For about half their height the walls are covered with tiles of a soft blue-green tint with dark-green border and capping,



CROSS VENTILATED LOBBIES AND OUTSIDE HANGING LARDERS TO WARD KITCHENS, BELGRAVE HOSPITAL FOR CHILDREN.

being enamel-painted cream above. The windows are sash windows with large fan lights over. A double line of two-inch hot-water pipes runs along the sides and one end, while in the middle is a tiled stove. Adjoining each ward is the nurses' kitchen, with range, dresser and sink. Attention is drawn to the special cupboards or larders, which are hung outside the building and can thus be kept admirably ventilated. The inspection eye into the ward is also a feature, because instead of being a flat sheet of glass it is carried into the ward as half an octagon, which enables the nurse to see the whole of the cots at a glance. Besides the main wards on the first floor is a very bright babies' ward lined entirely with cream-colored tiles and having tile picture panels illustrative of children's stories.

The second floor is practically a duplicate of the first, except that an operating theater takes the place of the babies' ward. This theater has a north light along the whole of one side. The doors shut quite flush and have no moldings. The floor is of marble mosaic and has a



OPERATING THEATER, BELGRAVE HOSPITAL FOR CHILDREN.

channel under the basins into which the overflow discharges, being carried along into the washing-up and sterilizing rooms on either side, and there trapped. The wall shelves are of half-inch glass held on brass arms. This theater is ventilated on the plenum system, air being forced in through a brass netting about eighteen inches below the ceiling (after having been washed and warmed) and withdrawn at floor level through mica flaps. The operating theater is the gift of Mr. Clinton Dent of St. George's Hospital, and according to his suggestion the basins have levers that can be worked with the elbows, thus leaving the hands free; there are no plugs to the basins, for the reason that surgeons now regard it as safer to wash their hands in running water.

ENTRANCE HALL, BELGRAVE HOSPITAL FOR CHILDREN.

The third floor is occupied with bedrooms for the nurses, and the fourth floor, which carries the center pile to nearly one hundred feet, with cubicles for the servants.

It may be mentioned that the architect designed not only the fabric of the building, but all its interior finishings, down to the door knobs, electric fittings and the tile covering for the ward stoves.

Examples of the Greek Revival Period in Alabama. II.

(*Article I on page 121.*)

BY J. ROBIE KENNEDY, JR.

THE BLACK BELT.

ACROSS the middle portions of the Gulf States of Alabama, Georgia and Mississippi stretches the black-soiled prairie and rolling land of the Black Belt, — a land that was and is to-day prolific in the production of cotton and corn by reason of its climate and its soil. This country naturally figured prominently in the earlier settlement of the South. It was the goal and the paradise of the cotton grower and the planter.

The early settlers were from Virginia and the Carolinas, — from lands which were becoming comparatively overcrowded and from soils which were somewhat worn out. Since prosperity came to these people so quickly and so permanently, their first object seems to have been to erect for themselves homes, — homes that were according to their ideas of good architecture and their taste and refinement. It must be remembered here that the principles of good architecture were pretty well understood in the home states of these emigrants of Virginia and the Carolinas, and the houses which they built speak in a way for their character. Why they chose the Greek Revival style in preference to the Georgian architecture of the homes of their ancestors has been set down in the preceding article in THE BRICKBUILDER on this subject.

PAVILION, "GAINESWOOD."

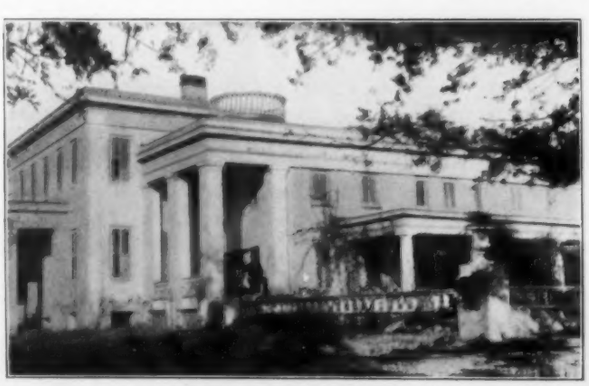
One is strangely impressed, after studying the Greek Revival as it was practised in the Black Belt, with the liberties these old builders took with the accepted standards of the orders. They were not wont to copy lavishly the details, as the architects of the northern states did. In "Gaineswood" we find the omission of triglyphs and metopes of the Greek Doric order used in the portico on the north front, and the guttæ continue in a band in the architrave as if they served as a band of dentils. It is not uncommon to find Ionic bases under Corinthian shafts, and why? Because the Ionic bases were easier of construction, the moldings not being of such a complex nature. Still these alterations are not to be despised; although the purist may sniff scornfully at these little grammatical slips, it is such pieces of architectural *naïveté* that make southern work all the more interesting.

In one respect the builders in the Black Belt of Alabama outdid their fellow planters, and that was in the composition of their plans. They were not satisfied with the wide hall down the middle of the house, with rooms on either side, and as a consequence their arrangement of the rooms shows more architectural character. Thus we see in "Gaineswood" a mezzanine floor to the second story, with windows opening on the north portico, which, while not obstructing the free passage of air, prevents the glare of the hot southern sun.

NORTH FRONT, "GAINESWOOD," DEMOPOLIS.

In the Otts place, in Greensboro, the kitchen and pantries are not to the rear of the main house, as we usually find them, but are to the left, saving the house proper the mortification of having a rear with its rubbish and uncleanliness which are unavoidable with negro servants. In addition to removing the kitchen, etc., to the side, the rear elevation was made a duplicate of the front, — an excellent portico of the Greek Ionic order.

The season of the year in which the Black Belt should be visited is in the early spring. At this time the vegetation is luxurious and forms the setting which contributes in a large measure to the good *ensembles* of these old places. The great variety of exquisite shades of green make it a real delight to live outdoors. The white jessamine comes first in point of time as well as in beauty and perfume. Then there is the Cherokee rose, which climbs with its strong arms the fences and trees and droops in festoons of glossy dark green leaves and snow-white blossoms. Smilax, with its fragrance, climbs rampant over



SOUTH FRONT, "GAINESWOOD."

PERRY COUNTY COURTHOUSE, MARION.

THE OTTS HOUSE, GREENSBORO.

the wide verandas and their white pillars. The surroundings of these southern homes owe their beauty to the shrubbery and flowers, for here we do not find good lawns; the hot sun is quick in its work of drying and withering the grass, which is thick and stubble and has not that softness and greenness found in northern climates.

The town of the Black Belt which has the most interesting beginning is Demopolis, situated in the very heart of this rich farming district high up on the banks of the Tombigbee River near its confluence with the muddy waters of the Black Warrior.

Early in the last century, about 1815, a party of Frenchmen, almost all of whom were exiles from the court and army of Napoleon, sought refuge on our American shores. Here in Alabama they were given a large tract of land by the Federal government on condition that the vine and olive should be cultivated. This offer they accepted, but their project was not a successful one; the grapevines were killed by insects and the olive trees by the winter frosts. One by one they returned to their native soil or went to other parts of America, leaving perhaps a few dozen of the original settlers in Demopolis and Marengo County. One is disappointed at not finding here some houses of French character; although in the excellence of detail found in the Whitfield place, called "Gaineswood," one is tempted to believe that French workmen or French designers were brought into use. This theory, however, cannot be substantiated, as the common tradition of the town is that the house was designed by a daughter of the builder and owner, General G. B. Whitfield. This last theory is not improbable, as the women of *ante bellum* days were quite the equal of the men in their enthusiasm for building and for classic architecture. The house has a picturesque setting, in a grove of luxurious cedars. The grounds are entered through massive gateways; the surmounting ornaments of the pillars are of good detail, and although made only of stucco they have stood the test of time and the elements wonderfully well. We have yet to find a house better in detail and in composition than this home of the Whitfield family, and it is perhaps the only one to which such a *porte-cochère* was built.

MARION MILITARY INSTITUTE.

"BLUFF HALL," DEMOPOLIS.

There seems to be no accepted front to the building, the elevations appear to be all of equal importance. The north front, as it faces the gateways, was perhaps considered the *real* front. To the right of the entrance gateways is the little lodge-keeper's house with the ever-present portico, the thing that is most characteristic of southern Greek Revival.

The interior of "Gaineswood" is quite the equal, from an architectural standpoint, of the exterior, with the difference that it is far more elaborate. The stucco orna-

ment, always white, has been used very freely, but still not enough to overstep the bounds of good taste and refinement. The mantels of the more prominent rooms are of particularly good design, and of the white marble which came undoubtedly from the Carrara quarry. The reception or ball room, opening off the north portico, is perhaps the largest and best designed room in the house, the wall spaces being divided by Greek Corinthian pilasters and the ceiling divided by deep studded beams treated with the honeysuckle ornament in relief, while the doorways are flanked by detached Corinthian columns.

Another place in Demopolis which is worthy of mention is "Bluff Hall," the seat of the Lyons family, built about 1831. Situated on the banks of the Tombigbee River, it has a charming view from its rear and side verandas. The order used in the front portico is evidently of Doric origin; the immense pilaster columns are in fact piers, and the capitals are composed of only a few moldings. The interior of the house, however, makes up for the defects of its exterior. The library is perhaps the best designed of the many rooms. It is divided by columns and pilasters, the origin of which is undoubledly the order used in the Tower of the Winds in Athens. The brickwork of "Bluff Hall" is of the common variety found in the Black Belt, the bricks being of a dark chocolate or dull brown color, of a rough surface, but uniform is size and laid up in thick white mortar joints.

A little to the north of Demopolis about twenty or twenty-five miles we come to Greensboro, a town very characteristic of this region. The old residences are situated far back from the streets and far enough apart to give that secludedness which the people of the old *régime* desired. For Americans this little town has some interest, it being the birthplace and home of Richmond Pearson Hobson, of *Merrimac* fame. The home of the Hobson family is a type of house found much in this district; that is, the whitewash stucco front and columns, while the sides and rear show the natural brick without paint or wash.

Passing down one of the sleepy old thoroughfares, one cannot fail to be attracted by the Otts house, at the end of a vista of dense green magnolias and smaller shrubs. The garden at its front has the old-fashioned walks wandering about in the cool shade of the magnolias and between the many flower beds.

One lamentable feature in the design of the Greek Revival houses is the utter neglect shown for the side and rear elevations. There are, however, a few exceptions to this rule. The average builder of that day seems to have thought that no one ever looked at the rear or the side of his house, and perhaps this accounts for the long rows of oaks and cedars that we find flanking the entrance driveways, and the massing of trees at the sides of the house, evidently to detract the eye from the errors of the design, and to focus it to the show elevation — the front. It is hard to trace back such a custom. Certainly it was not from the eastern states of the South, and it cannot be traced to the Greek Revival in Europe. The few exceptions to this rule are notable ones, being "Gaineswood" and the Otts place in Greensboro.

THE HOBSON HOUSE, GREENSBORO.

At the town of Marion, fifteen or sixteen miles from Greensboro, are found two examples worthy of note, the Perry County Courthouse and the main building of the Marion Military Institute, dating from 1820 and 1826 respectively. The courthouse impresses one at first sight by its simplicity of design and its air of repose and dignity, its large Ionic columns standing out in dazzling white against the rich foliage of the live oaks. The building of the Marion Military Institute was in the *ante bellum* period a college for girls, and was used for this purpose up to the beginning of the Civil War.

(*Concluded.*)

Shutters and Other Devices for Protection against Exposure Fires.*

BY JOHN R. FREEMAN.†

A POINT which interested me exceedingly, in studying the Baltimore ruins, was to see whether thin wrought iron or steel plate, such as is used for covering fire-shutters, had at any point been heated to a temperature where its power of resistance was seriously impaired. The ordinary underwriters' fire-shutter depends for its strength and its resistance upon its thin covering of very soft mild steel coated with tin. I examined thin sheet-steel lamp shades, thin bands for pipe coverings, tin boxes, filing cases, and dozens of shutters themselves. In no place did I find any indication that metal of that quality had been so softened or had reached such a heat that it would be seriously impaired for the purpose of fire shutters, and one of the great lessons that I brought away from the Baltimore fire was that our standard tin covering for the underwriters' shutter is all right, and that this covering material has sufficient power of resistance to withstand the fiercest heat of a great conflagration, but that we do need to find some better material than pine wood to fill it with. I also made careful examinations of copper in flashings, cornices, etc., to see if it had melted. In a few small spots in rare instances fusion had begun, but in general I found it had ample resistance to fusion, so that it can prudently be used for covering fire-shutters, where something more ornamental or weatherproof than tinned plate is desired and expense is no bar.

The standard underwriter shutter of wood covered with tin did not give a very good account of itself in the Baltimore fire, and I think it can be said, without fear of serious contradiction, that the endurance of the ordinary underwriters' shutter of tin-clad wood is limited to not more than about half an hour's endurance of a temperature of 1,500 degrees Fahrenheit, and that this limit is often passed in the heat of an ordinary conflagration, and that in many of the cases where single doors or shutters have shown up so well there has happened to be an incoming air current that has helped to cool the shutter.

The limitations of the tin-clad wooden shutter were shown at one corner of the burned district in Baltimore. A large shirt factory, whose windows were protected by wooden fire-shutters, had a very close call. By heroic efforts, with private pump and hose streams, the employees saved the factory. I took particular interest in examining those shutters, and although this was not at the hottest part of the fire, I found, in parts of the shutter at the hottest exposure, that the pine wood was charred entirely through and all gone.

This matter of better shutters is one on which we should set some of our best talent at work in the experimental way. Although the present shutter and the present approved form of fire-door are all right nine-tenths of the time and perhaps nineteen-twentieths of the time, they are not all that we need in a great conflagration.

I have said that buildings can be made fireproof against bad exposures. The possibility of making them so is found largely in the development of a superior thin form of fire-shutter, and in educating the architects and owners of buildings toward building a shape of window that is easily protected by the fire-shutter, and a neat window jamb formed to receive this shutter when folded back inside the window.

Windows of suitable size for all ordinary office purposes can easily be so designed that they can be protected by fire-shutters, and that the shutters when open and folded back on the inside will not be obtrusive or unsightly. When a bad exposure fire comes the ruin of the sash and glazing can be paid for cheerfully if the contents of the building are saved.

I was very much interested in the efficiency of the plain steel plate shutters on the inside of the windows in the Safe Deposit and Trust Company Building. These kept the fire out very successfully, notwithstanding that the large non-fireproof building of the Baltimore *Sun*, which was entirely wrecked, and was one of the hottest parts of the entire conflagration, was only ten feet away. The damage was so imminent that the police ordered the men to leave the Safe Deposit Building, and the heat melted the lead sash-weights within the cast-iron window casings, destroyed the sash and glass, and chipped the brick walls, but the damage on the interior of the building was almost nothing. These steel plate shutters were so set that they were free to expand, and they were free from ribs, and of a form not likely to warp much, and they did in fact warp but little, and the casing and jamb were of such form that this warping of the shutter off its seat did not open a wide crack, and there was no combustible material near them on the inside to receive their radiant heat.

Ribs are dangerous unless very carefully designed and attached, and, as generally applied, increase the liability to warp. I happen to have been an eyewitness of the fire twenty or twenty-five years ago that gave to the tin-clad shutter its great start on the road to popularity. This fire was in the Pacific Mills, at Lawrence, Mass. In that case there was a tin-clad wooden fire-door, of what has since become standard construction, standing immediately beside a steel plate shutter that was heavily ribbed on the edges. Apparently it was a fair comparative test for the two shutters. The ribbed steel shutter warped away from its bearings two or three inches, as I now remember it, in a way that let the fire play freely around its edges, while the tin-clad wooden shutter remained in place without warping and was in good working order when the fire was over, the tin covering intact and the wood charred only about half an inch deep. These results were published far and wide, and this gave the first great impetus to tin-clad wooden shutters.

There have since been hundreds of demonstrations of the endurance of tin-clad shutters in fires, and I have taken advantage of many opportunities to examine carefully into the conditions under which they have been exposed. The result of these examinations has been to convince me that the endurance of the tin-clad shutter is limited; that its limit of endurance is often passed; that for severe cases we do need something better than the ordinary underwriters' tin-clad wooden shutter; and that

* Extract from an address at the annual banquet of the National Board of Fire Underwriters, New York City, May 12, 1904.

† Consulting engineer, Providence, R. I.

we do need something very much better than the ribbed steel shutter or the rolling jointed steel shutter.

At present the best we can do in any important case is to use two fire-shutters or fire-doors, one outside and another inside; one will receive the brunt of the onslaught, and perhaps in the course of half an hour or an hour warp or break down; the second, shielded behind the first, will stand up to its work until any ordinary fire is over.

It seems to me that the main reason why those steel shutters in Baltimore, at the building which I have just mentioned, performed so well was that they were free from ribs, and thus became heated more uniformly, with but very slight warping; that they happened to be so fastened to a frame that they were free to expand, and their seat happened to be of such a shape that, although the shutter did warp a little, this did not open much of a crack, and that there was no combustible material close to them on the inside.

The path of safety from exposure fires for office buildings and the like lies in a window casing formed so that we can attach to it a shutter of a form similar to the ordinary inside house blind. Our ordinary business buildings have walls thick enough, so that by making the shutter in four folds, or leaves, two being hinged together, and these two in turn attached to the wall, making each fold in the shutter only about fifteen inches wide, the window will be wide enough for all practical purposes, and we can fold the shutter back within the window jamb, very much as we do the inside blind.

To do that with the present ordinary tin-clad shutter would be almost impossible, because of the thickness of that form of shutter. It can be done with a steel plate shutter without ribs, and the radiation from the inside can be checked by some thin incombustible porous covering like asbestos board. If in our underwriters' laboratories, in our technical schools, and in our tours of survey we can direct attention to these views and urge the solution of the problem of how to make an efficient fire-shutter which shall only be three-fourths inch or one inch in thickness, I believe that before long the problem of protecting an office building against exposure fires will be found solved.

It is entirely possible to design a window opening adapted to receive a safe shutter, so that it will be just as convenient for ordinary business purposes as the type now common. I think it probable that the best place for the shutters is inside the glass, sacrificing the glazed sash outside them in case of any great conflagration.

We hear a good deal nowadays about "water curtains," and I would like to say just a word on that, because I think there is a great deal of misapprehension about their efficiency. I would like to say a word about wire glass also, because, although in general excellent, I think there is a great misapprehension as to what wire glass can do.

I began experimenting with wire glass very soon after it first came out, and I have used it in numerous instances, and it is a most excellent material in its way, but it has its limitations; it has the same limitations that a water curtain has, and that is, that it does not stop the passage of radiant heat.

You all have noticed how, when you are traveling in a railway train, perhaps at sixty miles an hour, and they happen to be burning a pile of ties along the track, that although your face is directed towards your newspaper, you will feel the flash of heat passing through the car window and striking against your face as you go past that pile of burning ties. That simply illustrates the great ease and rapidity with which radiant heat passes through glass.

Now, radiant heat passes through glass with wire netting in it almost as easily as it does through any other glass, and the record made by wire glass in a certain building in Baltimore, which is pointed to with so much pride, is, I think, simply due to the fact that it was at a place where nothing combustible was immediately behind it. If you have a stock of dry goods, or wooden ware, or baled cotton or hemp just inside a wire glass window without shutters, and there is a hot fire across the street, these can probably be set on fire with much promptness by the radiant heat passing through the glass, and the subject should be thoroughly studied on a large scale in our underwriters' laboratories. For safety there must be something which will stop the radiant heat, and that can only be in the form of a shutter, and, by virtue of stopping the heat, the shutter will become hot.

The case with the water curtain is very much the same as with the glass. Water is diathermous, as physicists call it; that is, radiant heat passes through water very easily. We must, I believe, set down these stories that have been told about the efficiency of water curtains as being mainly fairy tales.

This supposed efficiency of the water curtain is another topic which I hope that some one of our underwriters' laboratories and some of our schools of applied science will take up and investigate with precision of measurement.

The window sprinkler came in for a good deal of praise in certain quarters in Baltimore. I took particular pains to investigate that, because I wanted to find just how far they merited it, and I have no doubt they did some good, but they are not entitled to anything like the glory that is claimed for them. They will tell you a great deal about the remarkable work done by the window sprinklers in the Toronto fire. Now, I sent a bright young engineer up there especially to investigate that question and to go into it in detail, and to take photographs of the individual windows and to get right down to the bed-rock facts, and, from the mass of evidence that he brings back, I do not doubt that they did some good; but the inside ordinary automatic sprinkler near each of these windows did very much more good.

In short, if you want to provide against an exposure fire, I believe the only way to do it is:

First, by a wall either of brick or cement concrete.

Second, by properly designed window openings and window casings; and

Third, by good shutters in those windows.

In the absence of shutters, automatic sprinklers, supplemented by heroic efforts with hose streams on the inside, may sometimes save the day, with great expense for water damage; but where exposures are bad, a good shutter on a proper window should be the first care of architect and owner.

Selected Miscellany and Editorial Comment

BUILDING COMMISSIONS.

THREE important commissions have in the past month been appointed by the State of Massachusetts. One is a special commission to consider and revise the building laws of the Commonwealth, which has authority to summon witnesses and to recommend changes in the law as it deems expedient, and is to report the draught of a new law to the next General Court on or before January 11. There is no doubt but that this commission will prepare and submit the draught of a law which will be admirably suited for its purposes. It remains to

OLD SOUTH BUILDING, BOSTON.
(Built around Old South Church.)
Brick furnished by Fiske & Co., Manufacturers' Agents, Boston.
Terra-Cotta by Atlantic Terra-Cotta Company.

be seen, however, whether the legislators will have the good sense to keep their hands off of the report or whether, as has usually been the case in the past, they will amend the report until much of the virtue is eliminated therefrom.

Another commission has been appointed which includes the secretary of the Boston Board of Fire Underwriters, the fire commissioner, and the building commissioner of the City of Boston. This commission

DETAIL EXECUTED BY ST. LOUIS TERRA-COTTA COMPANY.

DETAIL BY EAMES & YOUNG, ARCHITECTS.
Winkle Terra-Cotta Company, Makers.

is formed to pass upon applications to build mercantile structures with an undivided area exceeding 10,000 square feet on any one floor. The Legislature, by a recent amendment of the law, increased the limit for such structures from 10,000 to 20,000 square feet, provided that all buildings of over 10,000 square feet shall have an equipment of sprinklers, brick partition walls, exits and other fire protections satisfactory to this special commission. The alteration of the law was due probably in great part to the desire to erect for a dry goods company a building which would have a large undivided area, a condition not possible under the old statute; and the first building this commission will have

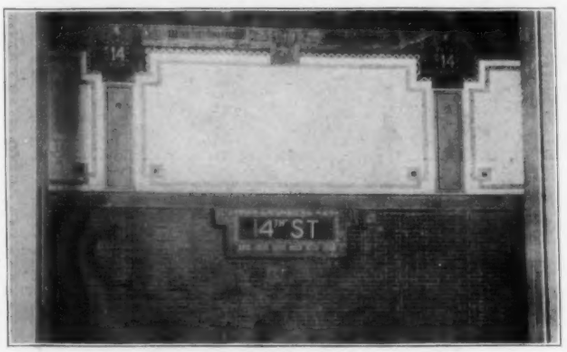
PENN MUTUAL BUILDING, BOSTON.
E. V. Seeler, Architect.
Built of Hydraulic-Press Brick laid Flemish Bond.
Terra-Cotta made by Conkling-Armstrong Terra-Cotta Company.

to pass upon will be this department store. The decisions of the commission will be looked for with great interest, and will be reported as far as possible in these columns.

A third commission has been appointed and has already largely completed its work. According to the

FAIENCE MANTEL IN DULL FINISH GREEN TILE.
Hartford Faience Company, Makers.

recent building laws, the height of buildings in Boston was fixed at two and one-half times the width of the principal street, or a maximum not exceeding one hundred and twenty-five feet. This maximum has already been cut down by a special enactment, so that buildings facing on parkways can be only seventy feet high and buildings on Copley Square only ninety feet high. As



DETAIL OF SUBWAY STATION, NEW YORK CITY.
Heins & LaFarge, Architects.

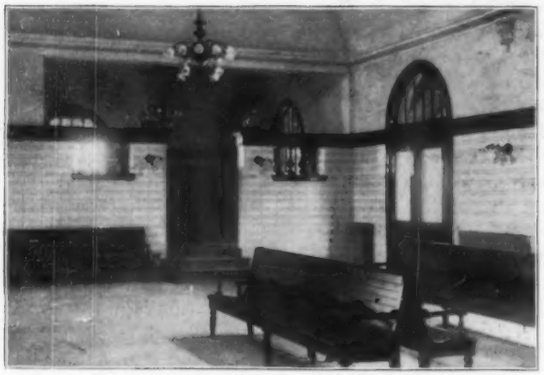
the law now stands, however, the city is divided into two districts, one of which is practically considered as devoted purely to business, and the other is considered as devoted purely or potentially to residential purposes. In the former district the old maximum height of one hundred and twenty-five feet prevails throughout. In the latter district the maximum is cut down to eighty feet.

The first work of the commission was to establish bounds for each district, and, roughly speaking, the division between the two cuts across the peninsula following the line of Charles Street to Park Square, thence by way of Pleasant Street and Broadway to the harbor. This arbitrary division is bound to work hardship. The extensive region fronting upon Park Square, now occupied in large part by the deserted station and yards of the Providence Railroad, is all in the eighty-foot district. The land values in Boston during the last twelve years, or since the introduction of steel frame construction, have been very generally readjusted upon the basis of an earning capacity as derived from a building one hundred and twenty-five feet in height. To have this possible limit cut down forty-five feet means a reduction of not less than thirty per cent in the earning capacity of the building, and in many cases would mean the difference between success and failure. We feel that this limitation is in the wrong direction, that it will decidedly hurt real estate values,

FAIENCE TILE USED IN NEW YORK SUBWAY.
Grueby Faience Company, Makers.

and will tend to retard natural development without offering any real compensation. If the law had been restricted in its application to hotels and apartment houses, there might be more reason for it, though the position of this journal has always been very clear that the height of a building ought not to be fixed arbitrarily, independent of its surroundings and location, but should be fixed by relation to the street or open space in front of it. The commission having charge of the administration of this law is prepared to consider requests for changes in the

WARD BUILDINGS, MINNEQUA HOSPITAL, PUEBLO, COLO.
Entire group of buildings roofed with Ludowici Roofing Tiles.



WAITING ROOM IN RAILWAY STATION.
Showing effective bonding with Tiffany Enameled Brick.

DETAIL BY GEORGE S. MILLS, ARCHITECT.
Northwestern Terra-Cotta Company, Makers.

districting, but the fact that such limitations exist has always made it hard to dispose of some pieces of real estate in the so-called residential district and will undoubtedly operate as a hardship to real estate owners.

MEMORANDA ON THE COMPETITION OF THE CARNEGIE TECHNICAL SCHOOLS.

THE Carnegie Technical Schools will provide a comprehensive system of secondary technical education based on the needs of workers in the industrial field generally.

There are at present numerous industrial schools throughout the country organized for work along definite and more or less restricted lines. But a new significance attaches to the organization of the Carnegie Schools, for the scheme of instruction is arranged to meet an expressed demand. This was brought about by a thorough canvass of the industrial workers in Pittsburg, and the younger people in the public schools from whom the ranks of the workers are to be recruited. These people were individually asked by the committee to state the particular calling for which they desired to be trained, and upon the basis of some 15,000 replies thus received the courses of instruction now announced have been arranged. These are no fewer than seventy in number, covering practically the entire range of the manufacturing industries of Pittsburg, and thus presumably very broadly those of the country at large.

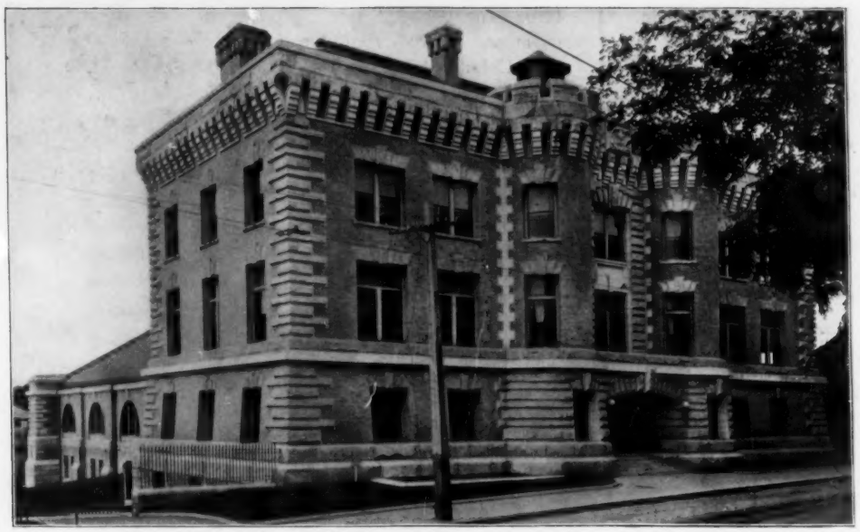
The scheme upon which the work is to be administered was outlined by a commission composed of Messrs. Arthur L. Williston of the Pratt Institute, Brooklyn; Arthur A. Hamerschlag of the New York Trade Schools (now the director of the Carnegie Technical Schools); and C. B. Connelly of Pittsburg.

The problem laid before the architects is that of providing for the instruction, under this scheme, of 4,000 students.

HOUSE AT AVONDALE, OHIO.
C. M. Foster, Architect.
Roofed with American S Tile, made by Cincinnati Roofing Tile & Terra-Cotta Company.

DETAILS BY GEORGE B. POST, ARCHITECT.
Perth Amboy Terra-Cotta Company, Makers.

DETAILS BY KEES & COBURN, ARCHITECTS
American Terra-Cotta & Ceramic Company, Makers.



ARMORY, MEDFORD, MASS.
Shepley, Rutan & Coolidge, Architects.
Built of Sayre & Fisher brick. Roofed with Celadon Roofing Tile.

The program states in an appendix the general character of the work to be done in the schools.

The plot of ground reserved for the schools is thirty-two acres in extent, and it is probable that the actual ground area covered by the buildings will be between ten and twelve acres. This includes extensions of shops, etc., for which provision must be made in the preliminary design. The total floor area of rooms (exclusive of hallways and other auxiliary spaces) will possibly reach a total of 1,000,000 square feet.

The probable cost of buildings and equipment is not stated in the program, it being the desire of the committee to secure an architectural scheme suitable for carrying into effect the educational plan of the schools; but it is quite certain that an expenditure of several millions of dollars will be required to construct and equip the buildings called for by the program.

NEW HOSPITAL AT ALLEGHENY, PA.

THE new Allegheny General Hospital, Beezer Brothers, architects, illustrated on page 135 of this issue, accommodates about 420 patients, 208 of which are ward patients.

In the rear of the main building is a four-story power and service building, containing boiler room, electric lighting plant, refrigeration plant, laundry, morgue, ambulance room, dining room for help, contagious department, pathological department, and thirty-five bedrooms for help.

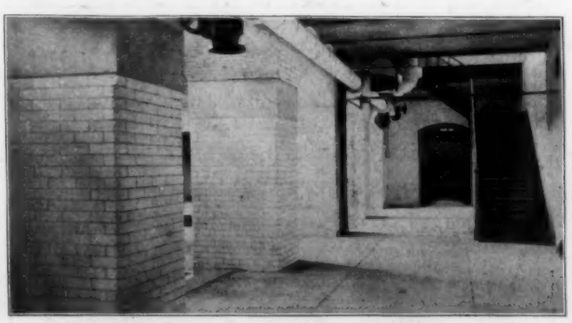
DETAIL BY D. D. KIEFF, ARCHITECT.
Brick, Terra-Cotta and Tile Company, Makers.

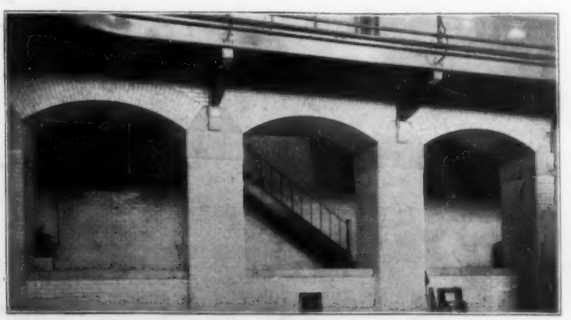
A very careful study was made of the heating and ventilating system. The cost was about $90,000, the total cost of the building, exclusive of furnishings, being $625,000.

The building is fireproof throughout, the Johnson long span system of hollow tile being used. The fireproofing was furnished and set by The National Fireproofing Company.

ENAMELED BRICKWORK IN THE NEW PUMPING STATION AT WASHINGTON.

THE illustrations of this work which appear in this issue do not adequately represent its character, which is rather unusual. Great care was taken in gauging and laying the brick, the gauging being done on the job and not at the factory. By this method the best results are assured. Again, great care was taken in the





INTERIOR VIEWS OF THE NEW PUMPING STATION AT WASHINGTON, WHICH WILL SERVE THE DISTRICT OF COLUMBIA WITH ITS WATER SUPPLY.
125,000 first quality enameled bricks furnished by American Enameled Brick and Tile Company.

sorting of the brick, which has resulted in a uniformity of shade which is seldom seen. The joints, both vertical and horizontal, are of uniform width, which adds much to the appearance of the work. The arches are as nearly perfect as can be. Full size shrinkage scale drawings for every arch were made by the manufacturer from the architect's drawings. The location of each brick was indicated on the drawings, with a corresponding mark on each brick.

We have given this description of the work by way of suggestion to those who have similar work to do and are desirous that it should be done in the best manner possible.

IN GENERAL.

Totten & Rogers, architects, have removed their Washington office to 808 Seventeenth Street.

Mr. G. L. Hamilton has been elected vice-president of the Grueby Faience Company.

DETAIL BY C. K. PORTER & SON, ARCHITECTS.
Excelsior Terra-Cotta Company, Makers.

Rand & Skinner, architects, Boston, have dissolved their copartnership. Theodore H. Skinner will continue the practice, with offices at 364 Boylston Street.

T. A. Morrison & Co. have been appointed agents for the American Enameled Brick and Tile Company at Montreal, Canada.

The group of Government Hospital Buildings for the Insane at Washington, D. C., illustrated in this month's issue of THE BRICKBUILDER, were roofed with Celadon tiles.

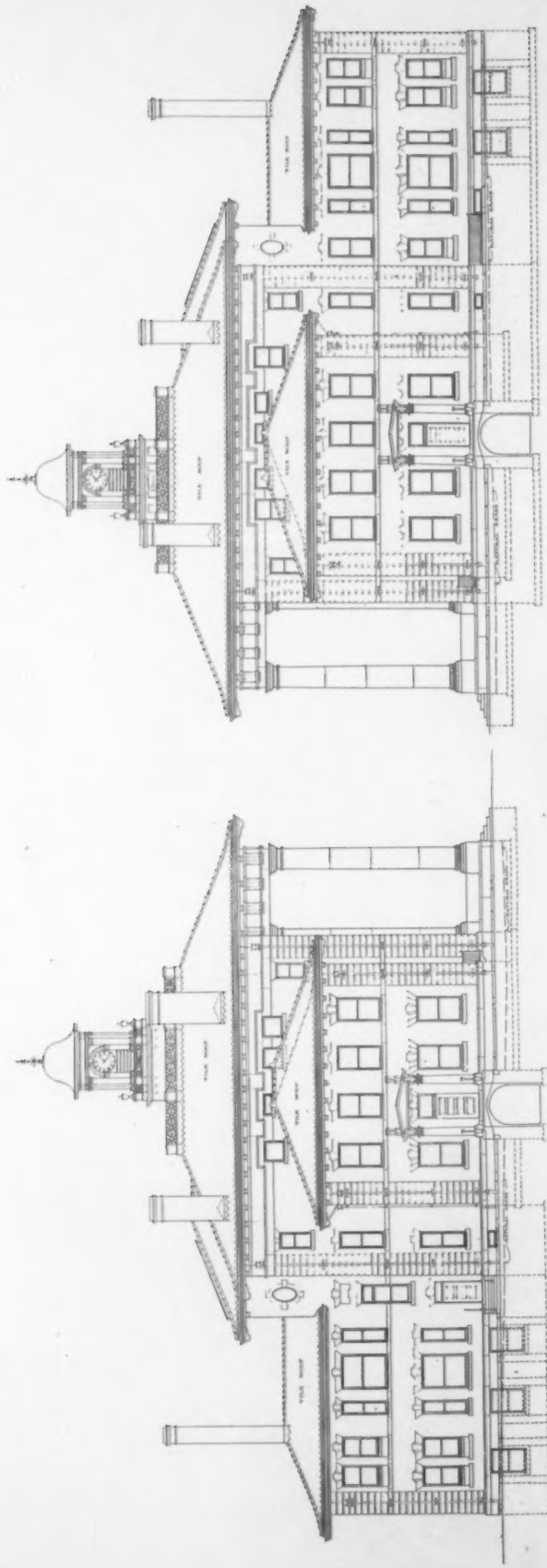
DETAIL EXECUTED BY NEW JERSEY TERRA-COTTA COMPANY.

Herbert D. Hale, Boston, has won the competition for the United Engineering Building, to be erected in New York through the generosity of Andrew Carnegie. The cost of the building will be about $1,000,000.

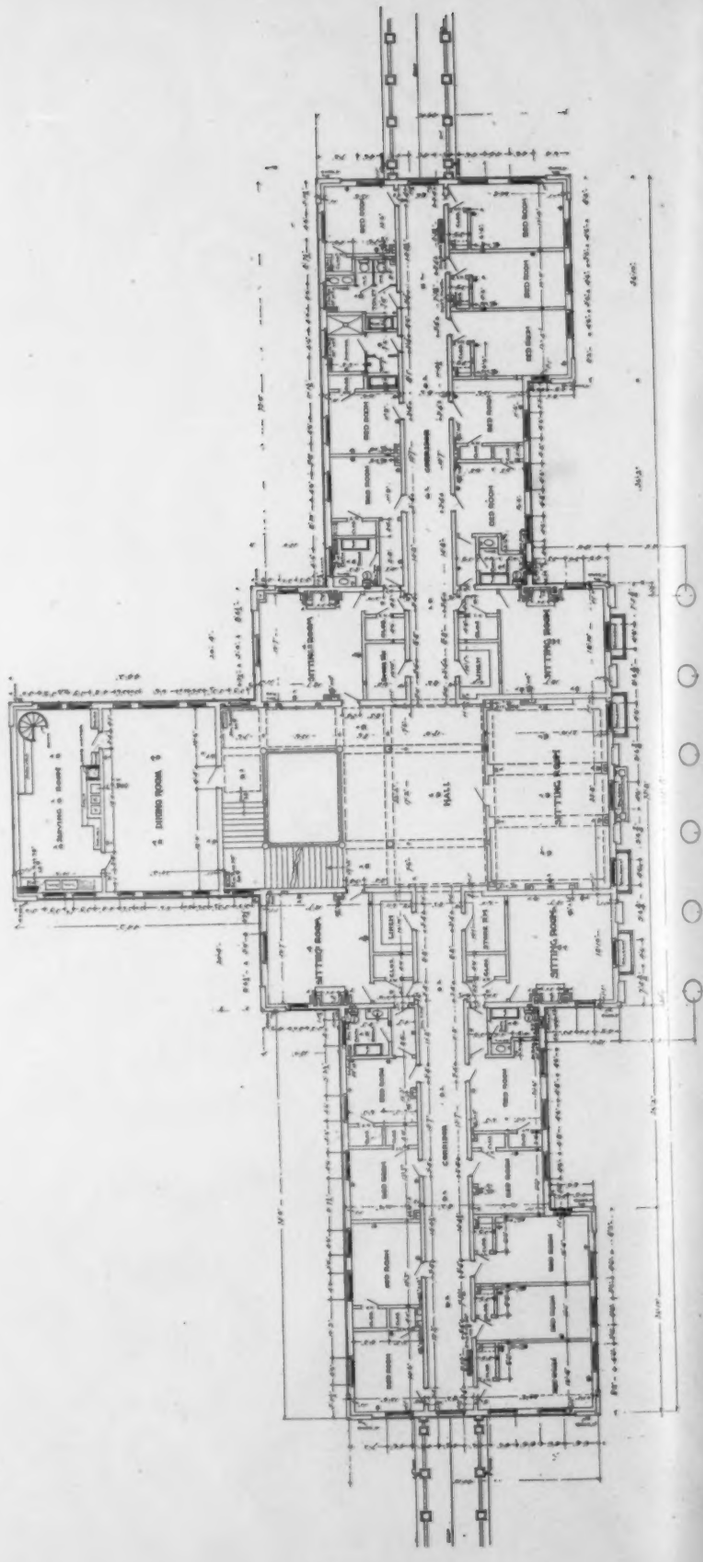
The American Enameled Brick and Tile Company have supplied nearly 400,000 enameled bricks for the new Bellevue-Stratford Hotel at Philadelphia; 25,000 enameled bricks for the exterior of an office building in Lima, Ohio; 40,000 enameled bricks for the Naval Barracks Training Station at Newport; 15,000 bricks for the new vaults in the machine shop at the Charlestown Navy Yard; 30,000 seconds for the new Commercial High School Building, Brooklyn, and 40,000 bricks for the exterior of the Minifie Building at San Francisco, Cal. Fifty thousand of their bricks will be used in the Williamsburg Bridge No. 2.

DETAIL BY H. B. MULLIKEN, ARCHITECT.
New York Architectural Terra-Cotta Company, Makers.

DETAIL BY BARNEY & CHAPMAN, ARCHITECTS.
Atlantic Terra-Cotta Company, Makers.



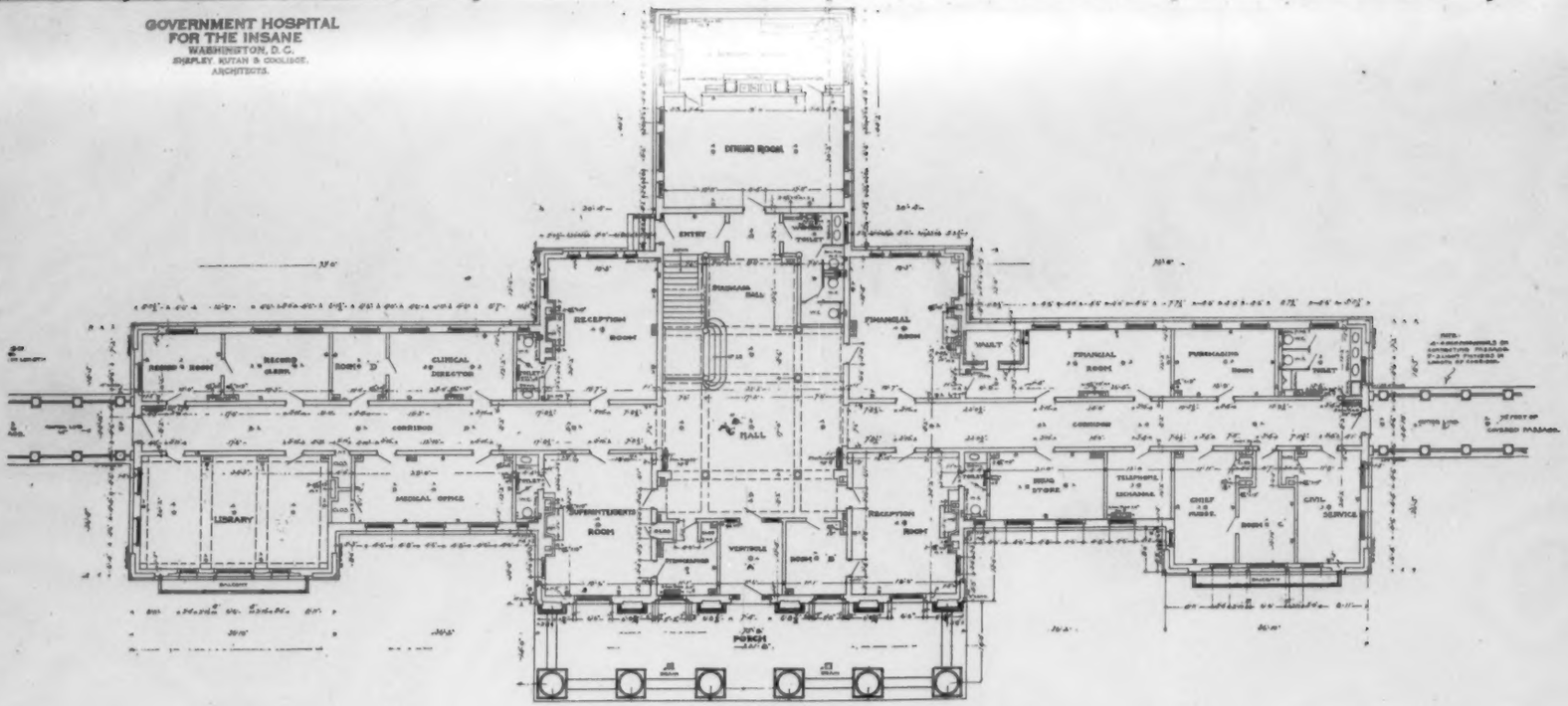
SIDE ELEVATIONS.



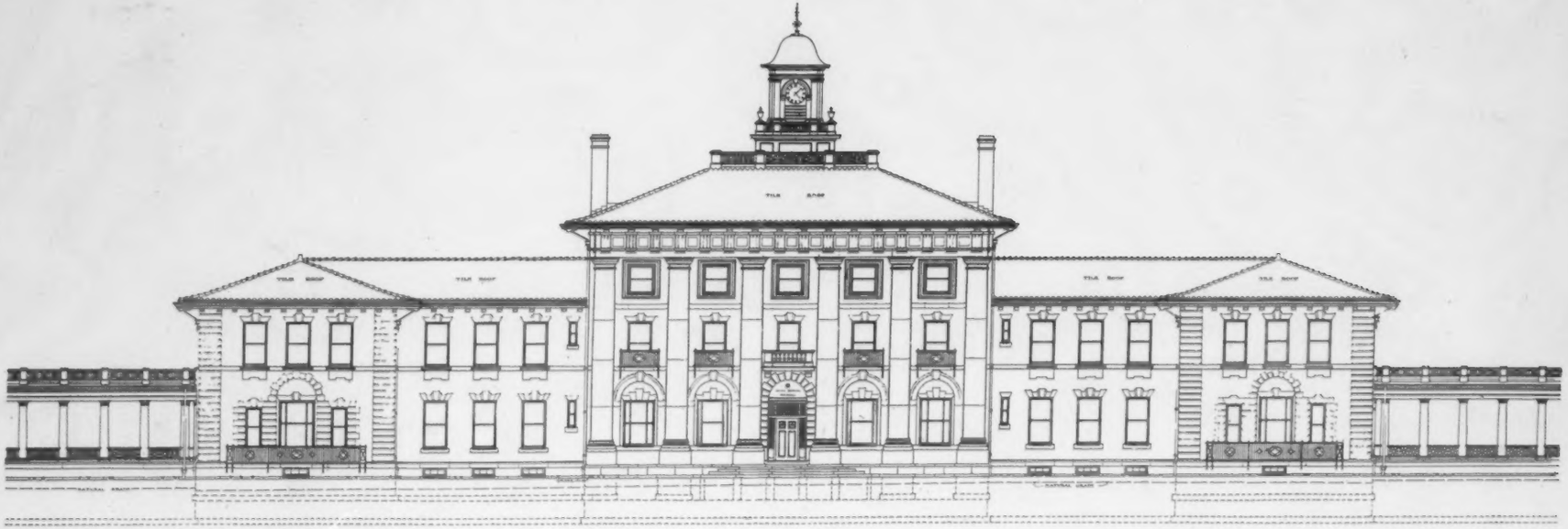
SECOND FLOOR PLAN.

SECOND FLOOR PLAN.

GOVERNMENT HOSPITAL
FOR THE INSANE
WASHINGTON, D. C.
SHEPLEY, RUTAN & COOLIDGE,
ARCHITECTS.



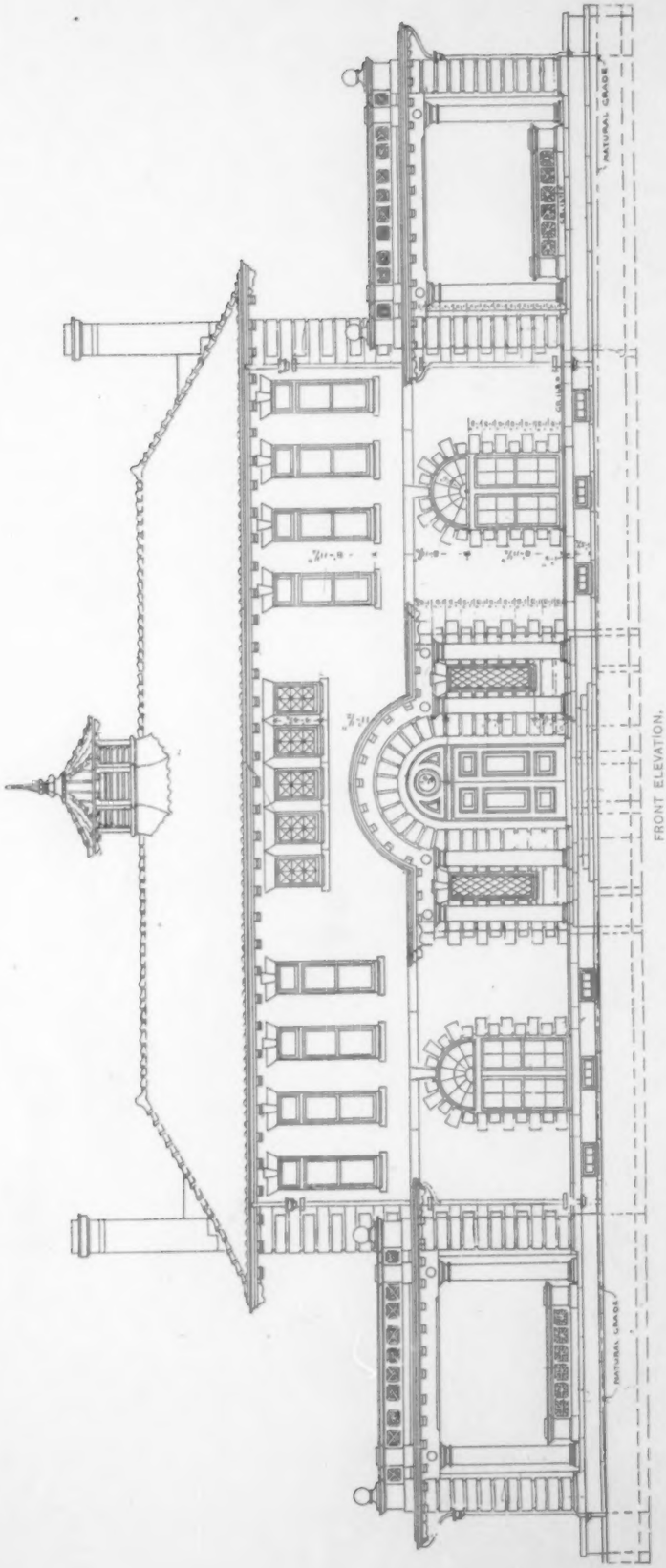
FIRST FLOOR PLAN.



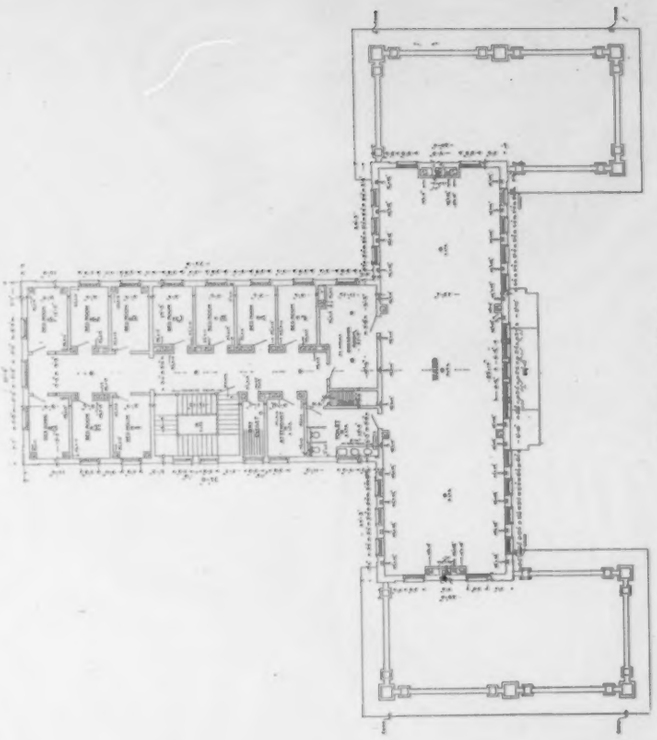
FRONT ELEVATION.

ADMINISTRATION BUILDING, GOVERNMENT HOSPITAL FOR INSANE, WASHINGTON, D. C.

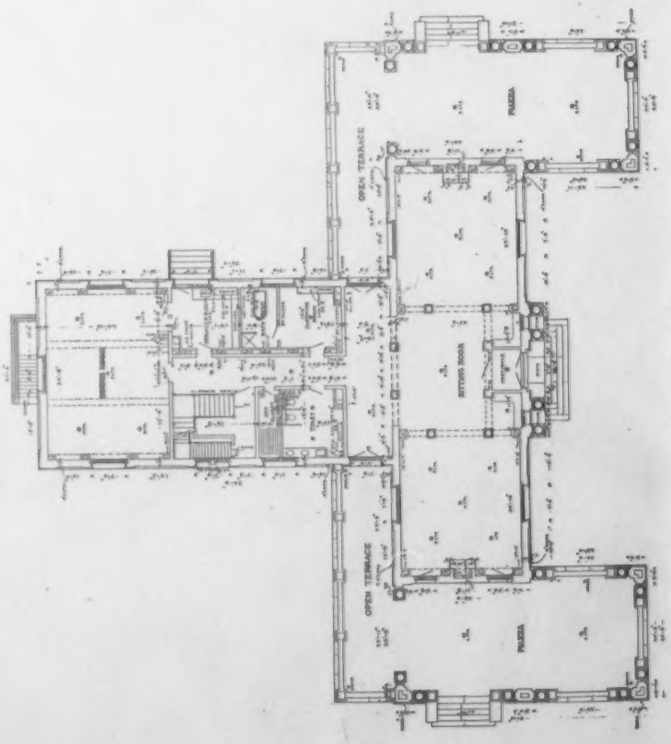
SHEPLEY, RUTAN & COOLIDGE, ARCHITECTS.



FRONT ELEVATION.



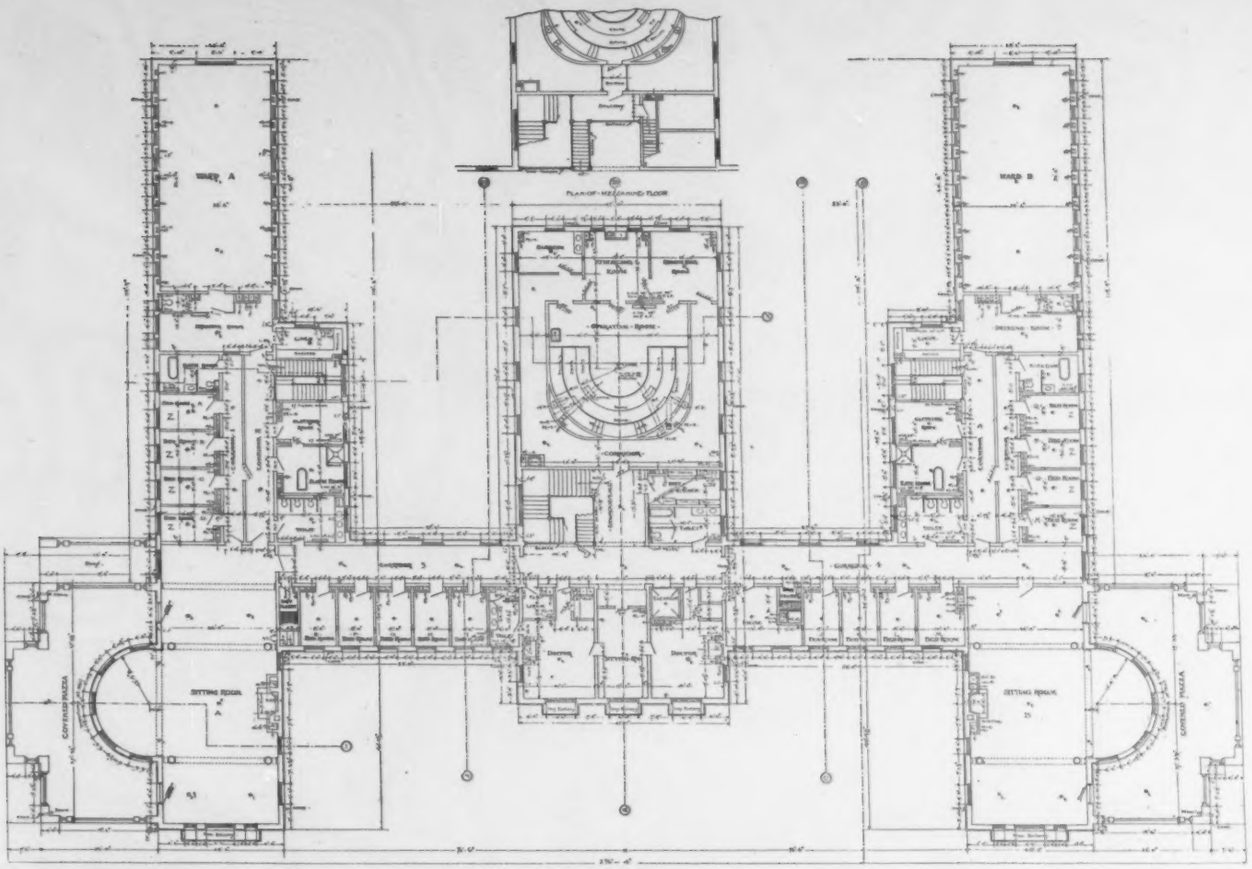
SECOND FLOOR PLAN.



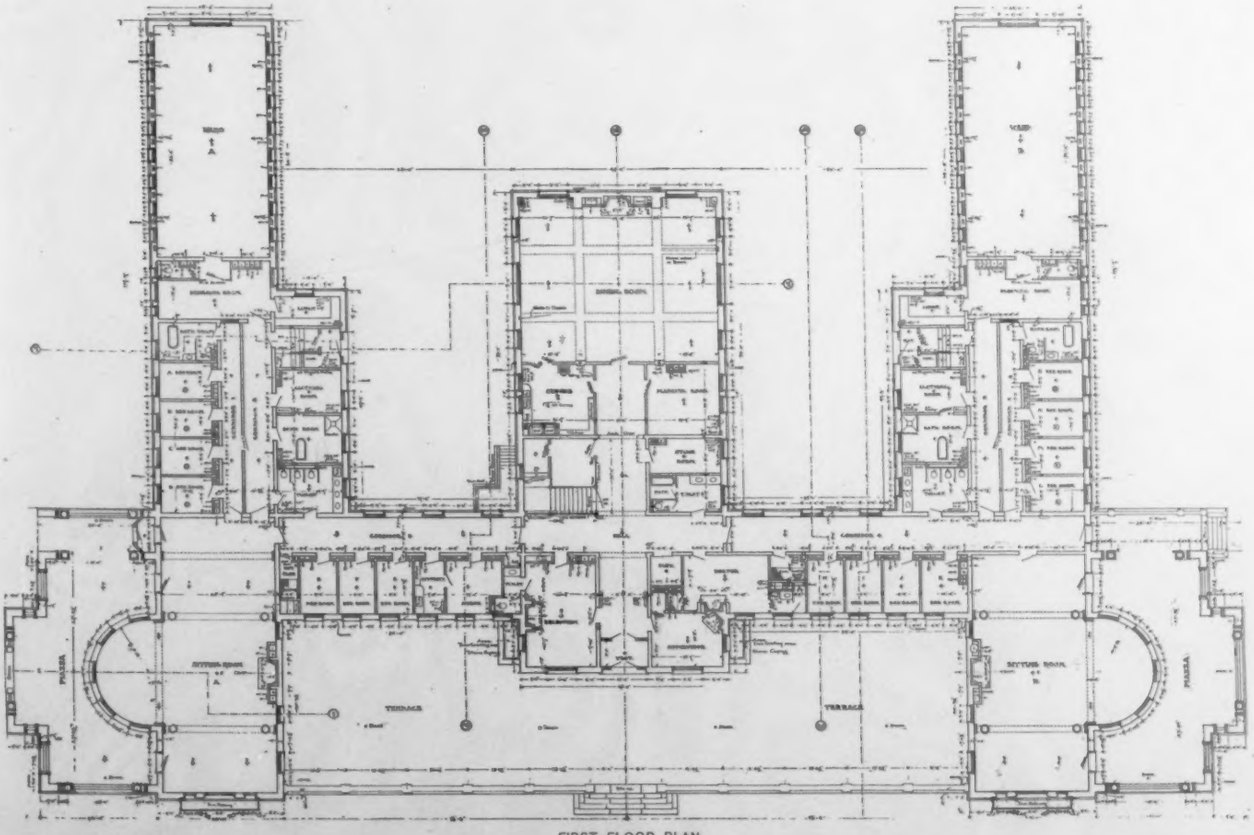
FIRST FLOOR PLAN.

COTTAGE FOR EPILEPTICS, FEMALE, GOVERNMENT HOSPITAL FOR INSANE, WASHINGTON, D. C.

SHEPLEY, RUTAN & COOLIDGE, ARCHITECTS.



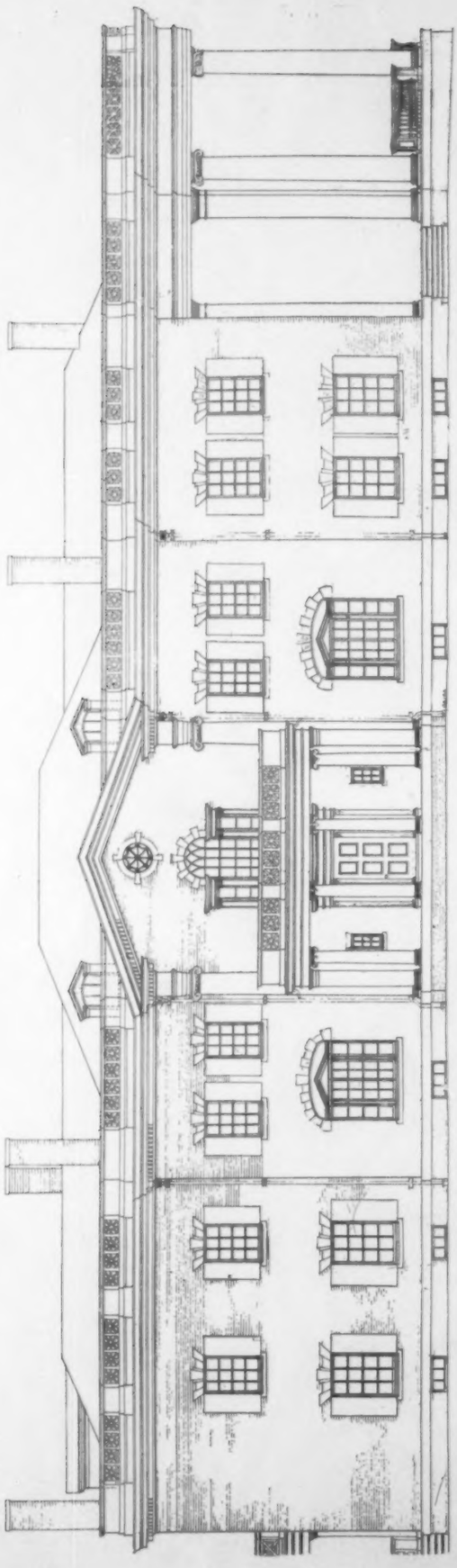
SECOND FLOOR PLAN.



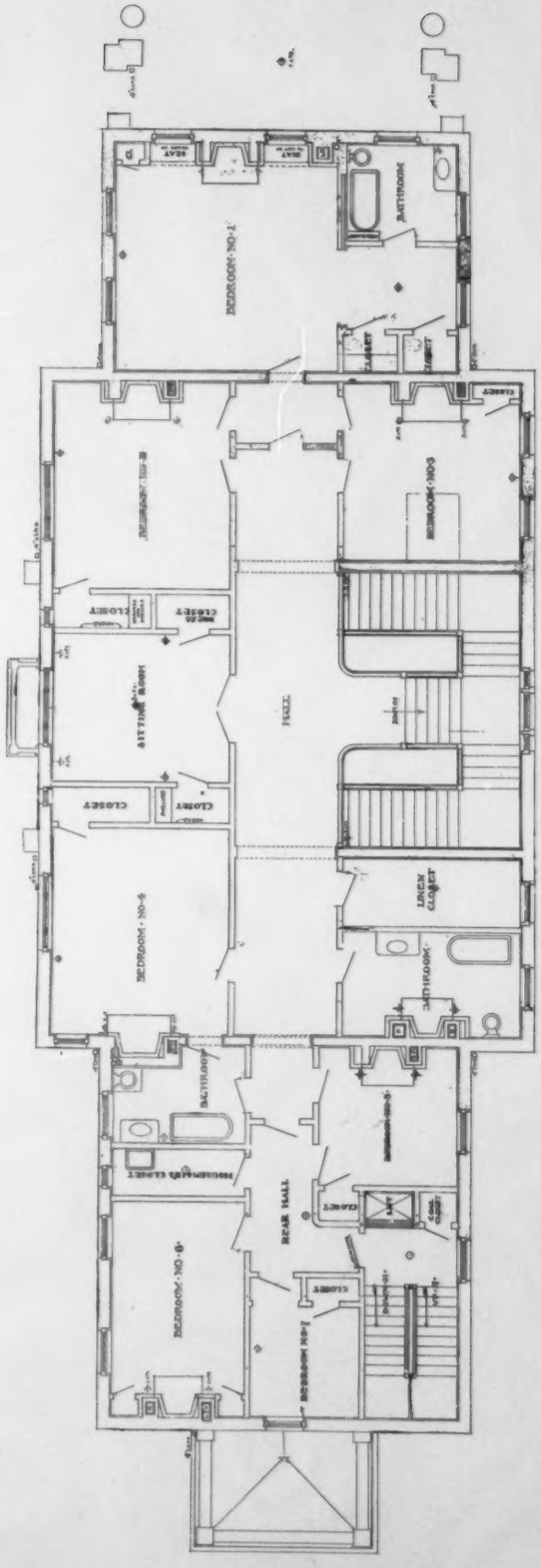
FIRST FLOOR PLAN.

PLANS, HOSPITAL FOR FEMALES, GOVERNMENT HOSPITAL FOR INSANE, WASHINGTON, D. C.

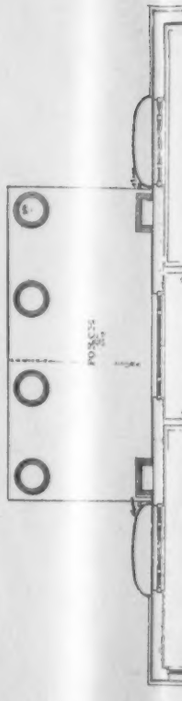
SHEPLEY, RUTAN & COOLIDGE, ARCHITECTS.



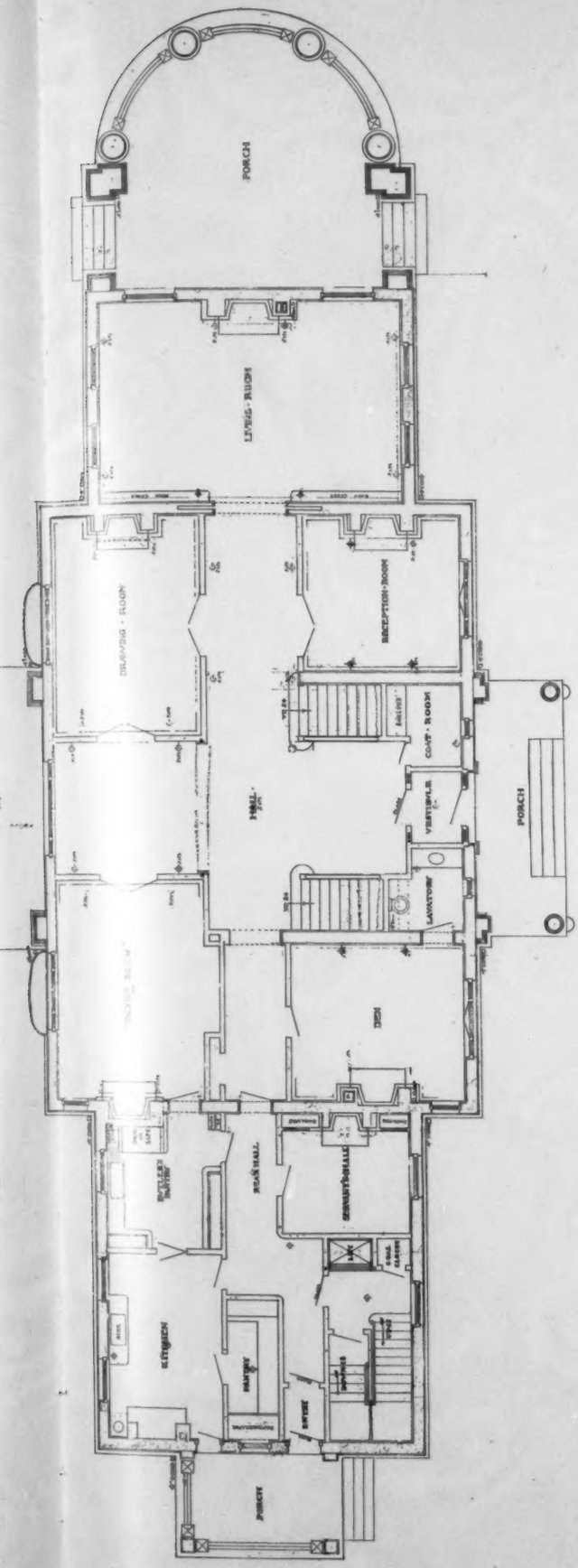
NORTH ELEVATION.



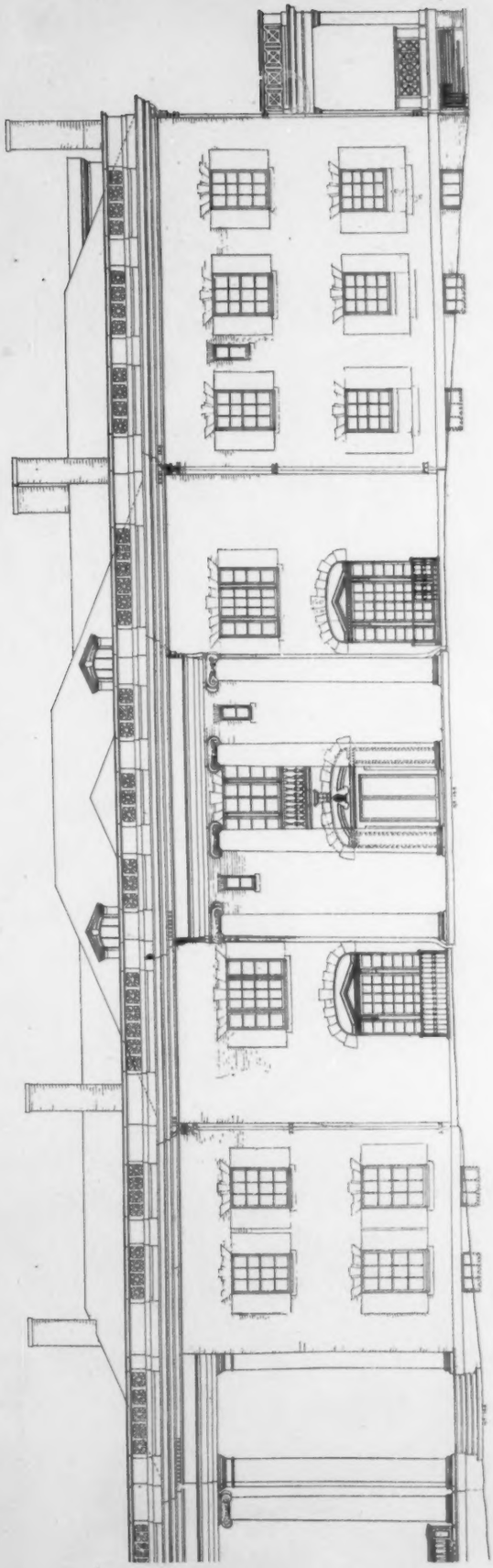
SECOND FLOOR PLAN.



PLATES 53 and 54.



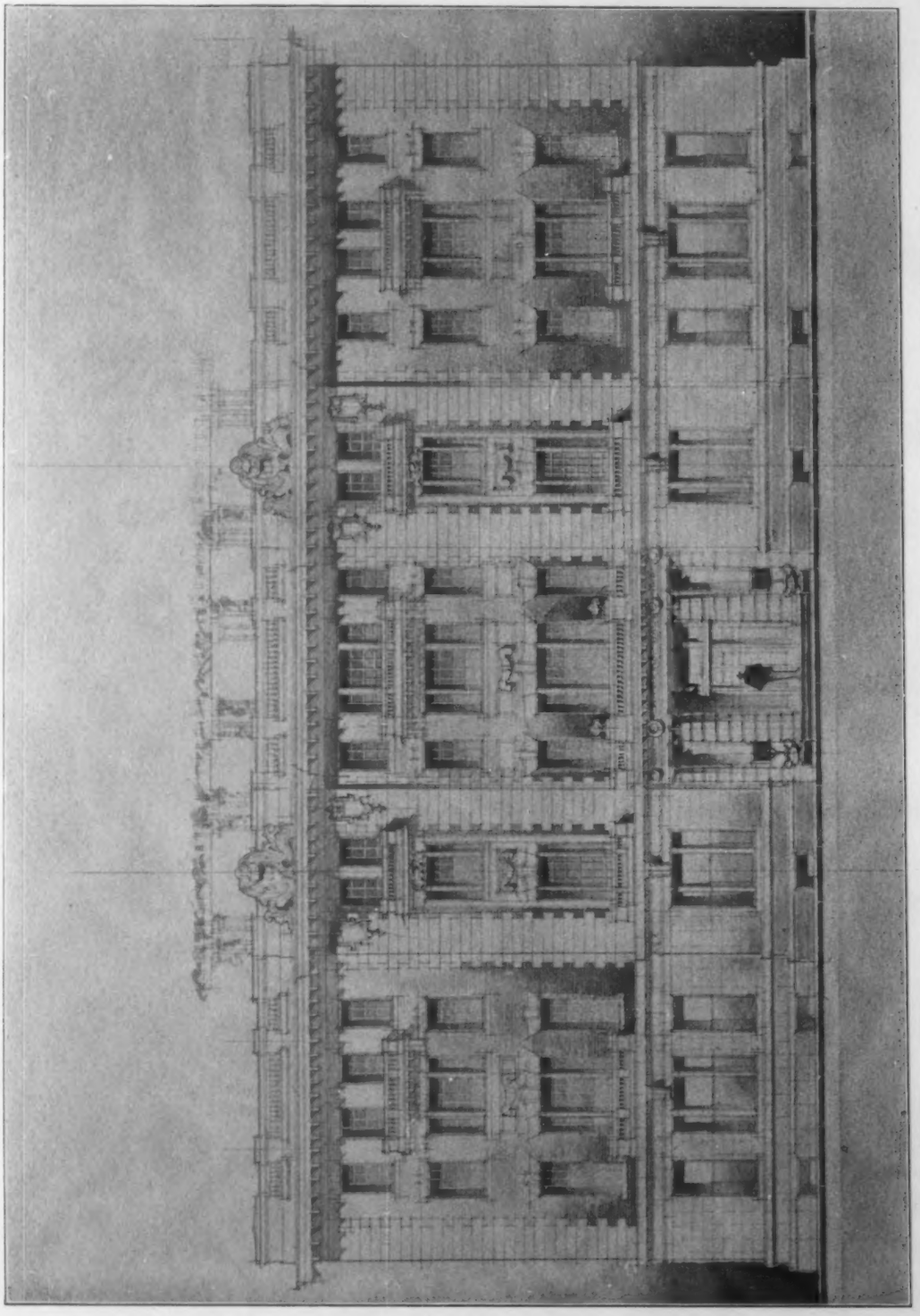
FIRST FLOOR PLAN.



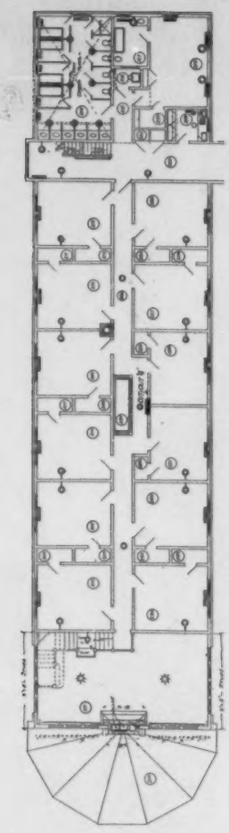
SOUTH ELEVATION.

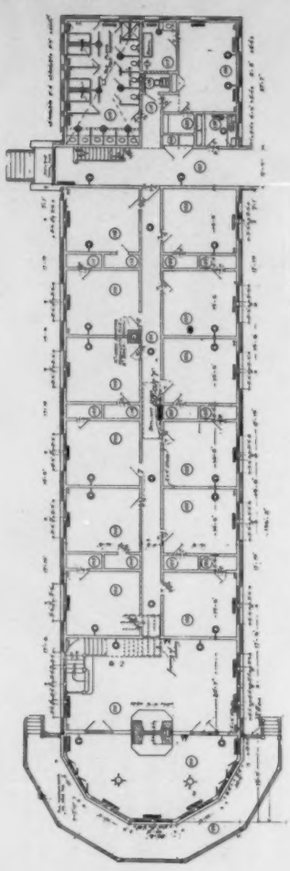
HOUSE FOR G. W. NORTON, ESQ., LOUISVILLE, KY.

SHEPLEY, RUTAN & COOLIDGE, ARCHITECTS.

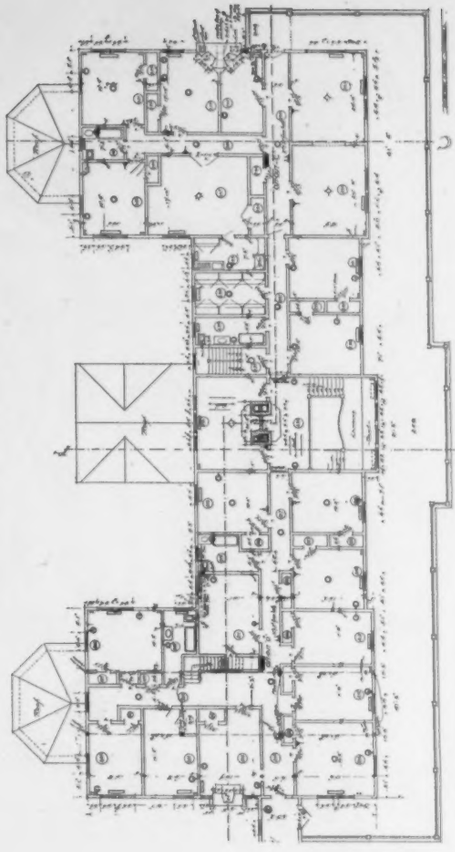


PERSPECTIVE. ACCEPTED COMPETITIVE DESIGN FOR Y. M. C. A. BUILDING, PAWTUCKET, R. I.
WALTER ATHERTON AND HERBERT D. HALE, ASSOCIATE ARCHITECTS.

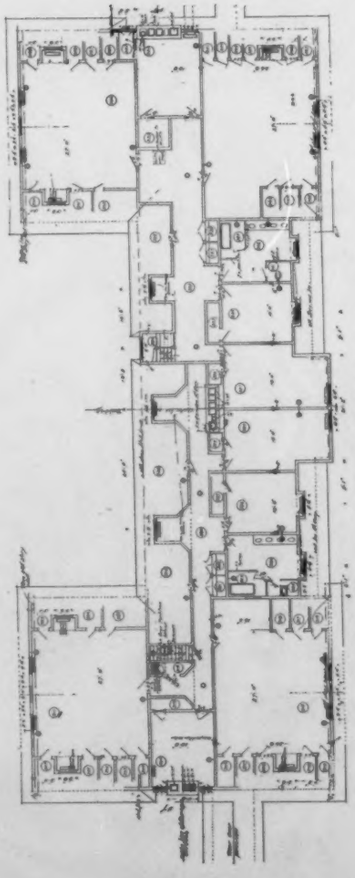




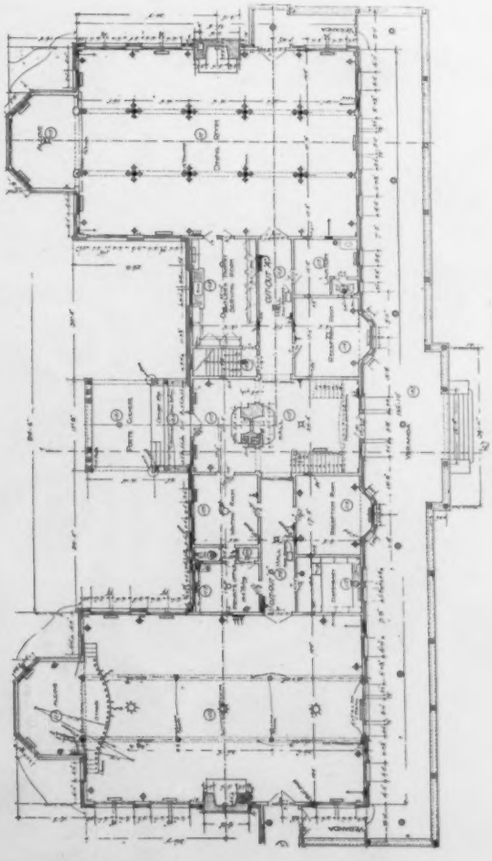
FIRST AND SECOND FLOOR PLANS, BUILDING "A."



SECOND FLOOR PLAN, MAIN BUILDING.



THIRD FLOOR PLAN, MAIN BUILDING.



FIRST FLOOR PLAN, MAIN BUILDING.

PLANS, STONY WOLD SANATORIUM. KUSHAQUA LAKE, N. Y.

RENWICK, ASPINWALL & OWEN, ARCHITECTS.

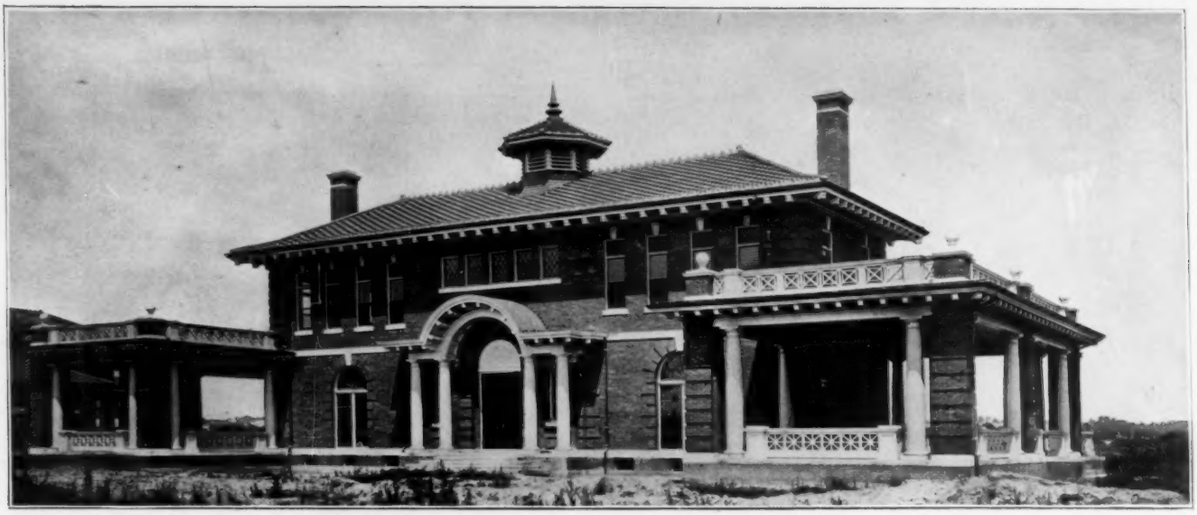
NOTE.—Kitchen, Bakery and Storerooms in basement. Second floor, rooms 236 and 242 to 255 inclusive are apartments for the superintendent; 234, bathroom for resident physicians; 235, linen closet; 231, sitting room for physicians; 211, 214, 215, 216, 218, apartments for the working staff; 200, 201, 202, 206, 208, 209, 212, 213, rooms for visiting friends of resident patients. Third floor, rooms 311 and 315, dormitories for female help; 308, 324 and 330, rooms for housekeeper and heads of departments; 354 and 346, dormitories for male help; 351, 303, 304, 307, chief and cooks; 319, 328, 332 and 339, closets; 324 and 342, washrooms; 301 and 365, closets. Building "A" is a room dormitory for patients. It is proposed to add dormitories "B," "C" and "D" at a future time similar in size to "A."

BUILDING FOR DISTURBED — MALES.

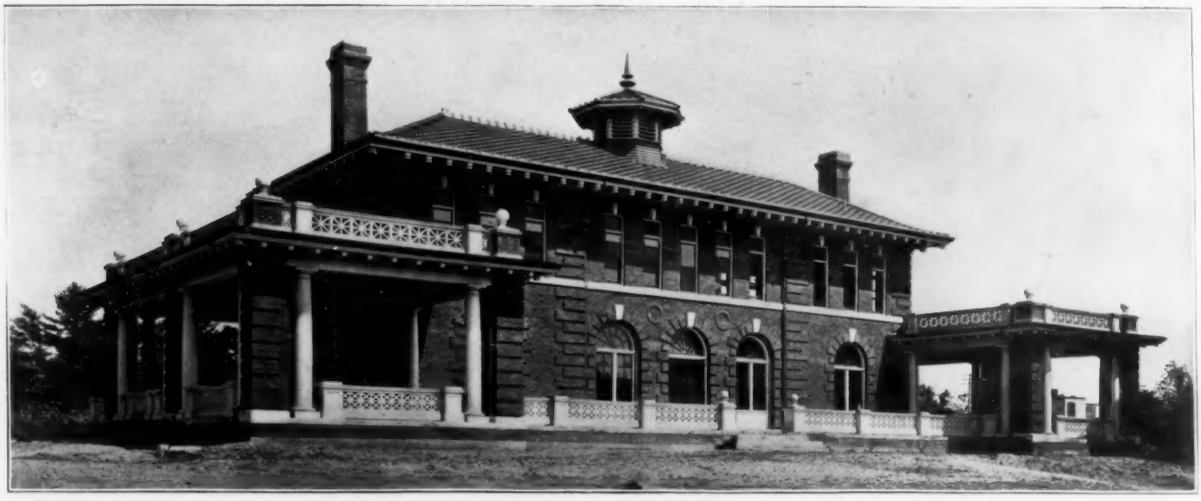
BUILDING FOR UNTIDY AND DESTRUCTIVE — MALES.

GOVERNMENT HOSPITAL FOR THE INSANE WASHINGTON D. C.

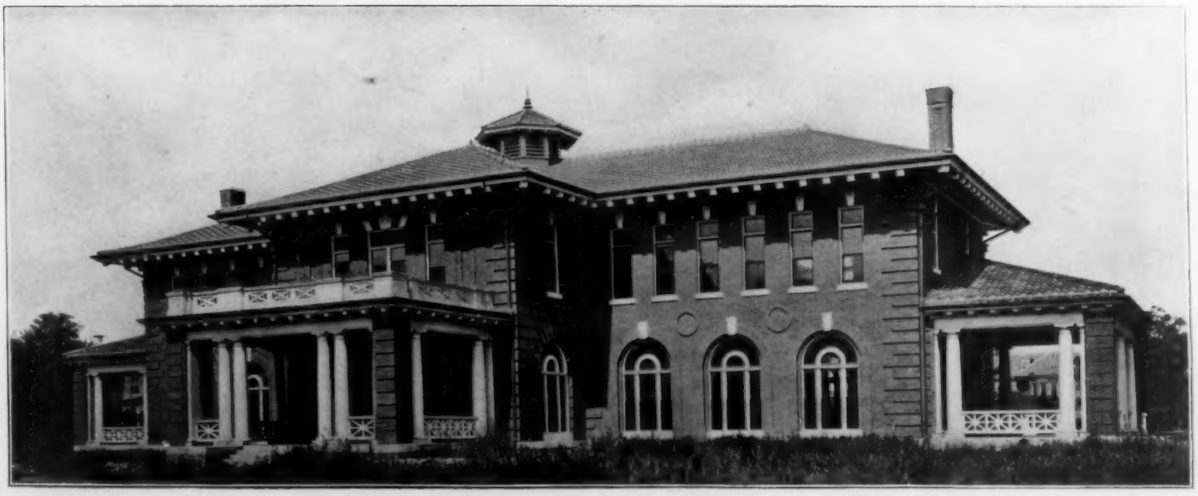
SHEPLEY, RUTAN & COOLIDGE, ARCHITECTS.



COTTAGE FOR EPILEPTICS—FEMALES.



COTTAGE FOR EPILEPTICS—MALES.



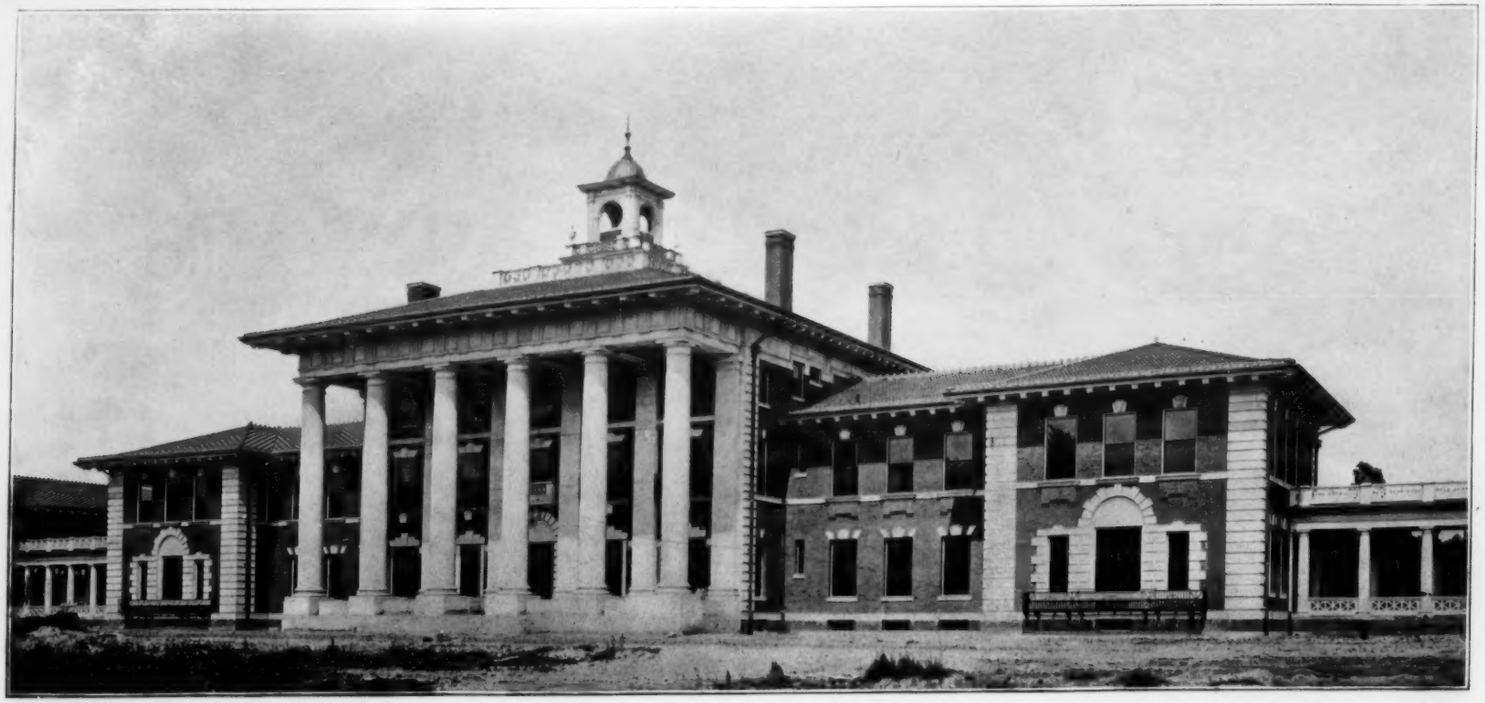
COTTAGE FOR MEDIUM CLASS—FEMALES.

GOVERNMENT HOSPITAL FOR THE INSANE, WASHINGTON, D. C.

SHEPLEY, RUTAN & COOLIDGE, ARCHITECTS.

HOUSE FOR G. W. NORTON, ESQ., LOUISVILLE, KY.

SHEPLEY, RUTAN & COOLIDGE, ARCHITECTS.



ADMINISTRATION BUILDING.

HOSPITAL FOR FEMALES, CONNECTED WITH AND AT RIGHT OF ADMINISTRATION BUILDING. HOSPITAL FOR MALES AT LEFT.

GOVERNMENT HOSPITAL FOR THE INSANE, WASHINGTON, D. C.

SHEPLEY, RUTAN & COOLIDGE, ARCHITECTS.

STONY WOLD SANATORIUM, KUSHAQUA LAKE, N. Y.

RENWICK ASPINWALL & OWEN, ARCHITECTS.

HOUSE FOR G. W. NORTON, ESQ., LOUISVILLE, KY.

SHEPLEY, RUTAN & COOLIDGE, ARCHITECTS.